

GenCore version 4.5  
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OM protein - protein search, using sw model

Run on: September 25, 2002, 10:01:12 ; Search time 29.75 Seconds  
(without alignments)  
504.032 Million cell updates/sec

Title: US-09-819-094-18  
Perfect score: 135  
Sequence: 1 MVQTVPLSRFLDHMLQAHK.....KDLEGIQTLMGRLEDGSPR 135

Scoring table: OLIGO  
Gapop 60.0 , Gapext 60.0  
Searched: 747574 seqs, 11107396 residues  
Word size : 0  
Total number of hits satisfying chosen parameters: 747574

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Listing first 1000 summaries

Database : A\_Geneseq\_032802:\*  
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Pred. No. is the number of results predicted by chance to have a  
score greater than or equal to the score of the result being printed,  
and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	ID	Description
1	135	100.0	135 20	AAW92263 Human anti-angioge
2	79	58.5	191 20	AA131765 Human placental la
3	79	58.5	191 21	AA178426 Human placental la
4	79	58.5	192 20	AAW92262 Human anti-angioge
5	73	54.1	135 22	AAW04730 Human polypeptide
6	70	51.9	129 22	AAW04735 Human polypeptide
7	52	38.5	115 22	AAO12412 Human polypeptide
8	52	38.5	145 22	AAW25914 Human protein sequ
9	52	38.5	229 22	AAU21684 Novel human neopla
10	50	37.0	75 22	AAO05545 Human polypeptide
11	46	34.1	120 22	AAO11018 Human polypeptide

12	37	27.4	131	22	AAO03677 Human polypeptide
13	37	27.4	151	22	AAO11014 Human polypeptide
14	35	25.9	87	22	AAO04794 Human polypeptide
15	35	25.9	125	22	AAO04728 Human polypeptide
16	34	25.2	51	22	AAO04799 Human polypeptide
17	32	23.7	139	22	AAO04550 Human polypeptide
18	30	22.2	129	22	AAO11875 Human polypeptide
19	29	21.5	129	22	AAO11921 Human polypeptide
20	29	21.5	134	22	AAO10470 Human polypeptide
21	29	21.5	150	22	AAO02111 Human polypeptide
22	28	20.7	92	22	AAO11746 Human polypeptide
23	27	20.0	118	22	AAO09830 Human polypeptide
24	24	17.8	113	22	AAO02860 Human polypeptide
25	24	17.8	114	22	AAO11765 Human polypeptide
26	24	17.8	120	22	AAO11732 Human polypeptide
27	24	17.8	134	22	AAO03601 Human polypeptide
28	23	17.0	122	22	AAO11968 Human polypeptide
29	23	17.0	134	22	AAO03496 Human polypeptide
30	23	17.0	266	22	AAU30664 Novel human secret
31	22	16.3	48	10	AA191498 Bases 112-159 of h
32	22	16.3	98	22	AAO06818 Human polypeptide
33	22	16.3	110	22	AAO10813 Human polypeptide
34	22	16.3	138	9	AA181226 Sequence of protei
35	22	16.3	140	10	AA191041 Human growth hormo
36	22	16.3	144	11	AA1905313 Segment of B-cell
37	22	16.3	176	9	AA182720 Human 20K growth h
38	22	16.3	176	18	AAW26202 20 kDa human growt
39	22	16.3	176	18	AAW26203 20 kDa human growt
40	22	16.3	176	18	AAW23662 Authentic 20-kilod
41	22	16.3	176	18	AAW23661 Authentic 20-kilod
42	22	16.3	176	19	AAW59762 Amino acid sequenc
43	22	16.3	176	19	AAW59761 Amino acid sequenc
44	22	16.3	177	16	AA176820 hGHV-3(53) growth
45	22	16.3	190	13	AA1824759 hGH variant #47 -
46	22	16.3	190	21	AA184644 Amino acid sequenc
47	22	16.3	191	7	AA160016 Sequence of human
48	22	16.3	191	13	AA1824268 Mature human growt
49	22	16.3	191	13	AA1824269 Mature human growt
50	22	16.3	191	13	AA1824270 Mature human growt
51	22	16.3	191	13	AA1824271 Mature human growt
52	22	16.3	191	13	AA1824272 Mature human growt
53	22	16.3	191	13	AA1824049 hGH variant #1 - 1
54	22	16.3	191	13	AA1824050 hGH variant #2 - 1
55	22	16.3	191	13	AA1824051 hGH variant #3 - 1
56	22	16.3	191	13	AA1824052 hGH variant #4 - 1
57	22	16.3	191	13	AA1824053 hGH variant #5 - 1
58	22	16.3	191	13	AA1824054 hGH variant #6 - 1
59	22	16.3	191	13	AA1824055 hGH variant #7 - 1
60	22	16.3	191	13	AA1824056 hGH variant #8 - 1
61	22	16.3	191	13	AA1824057 hGH variant #9 - 1
62	22	16.3	191	13	AA1824058 hGH variant #10 -
63	22	16.3	191	13	AA1824059 hGH variant #11 -
64	22	16.3	191	13	AA1824724 hGH variant #12 -
65	22	16.3	191	13	AA1824725 hGH variant #13 -
66	22	16.3	191	13	AA1824726 hGH variant #14 -
67	22	16.3	191	13	AA1824727 hGH variant #15 -
68	22	16.3	191	13	AA1824729 hGH variant #17 -
69	22	16.3	191	13	AA1824730 hGH variant #18 -
70	22	16.3	191	13	AA1824731 hGH variant #19 -
71	22	16.3	191	13	AA1824732 hGH variant #20 -
72	22	16.3	191	13	AA1824733 hGH variant #21 -
73	22	16.3	191	13	AA1824734 hGH variant #22 -
74	22	16.3	191	13	AA1824735 hGH variant #23 -
75	22	16.3	191	13	AA1824736 hGH variant #24 -
76	22	16.3	191	13	AA1824737 hGH variant #25 -
77	22	16.3	191	13	AA1824738 hGH variant #26 -
78	22	16.3	191	13	AA1824739 hGH variant #27 -
79	22	16.3	191	13	AA1824740 hGH variant #28 -
80	22	16.3	191	13	AA1824741 hGH variant #29 -
81	22	16.3	191	13	AA1824742 hGH variant #30 -
82	22	16.3	191	13	AA1824743 hGH variant #31 -
83	22	16.3	191	13	AA1824744 hGH variant #32 -
84	22	16.3	191	13	AA1824745 hGH variant #33 -

85	22	16.3	191	13	AAR24746	hGH variant #34 -	158	22	16.3	226	15	AAR49814	20K hGH (42Ser).
86	22	16.3	191	13	AAR24747	hGH variant #35 -	159	22	16.3	241	20	AAW88526	Fusion of killer t
87	22	16.3	191	13	AAR24748	hGH variant #36 -	160	22	16.3	244	20	AAR10042	Plasmid POW885 hum
88	22	16.3	191	13	AAR24749	hGH variant #37 -	161	22	16.3	245	21	AAV69791	MPSP-MWPmp20-(His
89	22	16.3	191	13	AAR24750	hGH variant #38 -	162	22	16.3	261	10	AAV91299	Human nerve growth
90	22	16.3	191	13	AAR24751	hGH variant #39 -	163	22	16.3	262	7	AAV61033	Human beta-nerve g
91	22	16.3	191	13	AAR24752	hGH variant #40 -	164	22	16.3	262	12	AAV11740	Human growth hormo
92	22	16.3	191	13	AAR24753	hGH variant #41 -	165	22	16.3	274	21	AAV26776	Human growth hormo
93	22	16.3	191	13	AAR24754	hGH variant #42 -	166	22	16.3	344	22	AAV70473	Npro-hGH fusion pr
94	22	16.3	191	13	AAR24755	hGH variant #43 -	167	22	16.3	360	21	AAV26777	Human growth hormo
95	22	16.3	191	13	AAR24756	hGH variant #44 -	168	22	16.3	397	12	AAV10043	Plasmid POW360 enc
96	22	16.3	191	13	AAR24757	hGH variant #45 -	169	22	16.3	400	21	AAV79577	Rat retinol bindin
97	22	16.3	191	13	AAR24758	hGH variant #46 -	170	22	16.3	407	22	AAV49195	Human growth hormo
98	22	16.3	191	13	AAR24760	hGH variant #48 -	171	22	16.3	779	18	AAW22719	Human serum albumi
99	22	16.3	191	13	AAR24761	hGH variant #49 -	172	22	16.3	784	18	AAW22717	Human serum albumi
100	22	16.3	191	13	AAR24762	hGH variant #50 -	173	22	16.3	789	18	AAW22718	Human serum albumi
101	22	16.3	191	13	AAR24763	hGH variant #51 -	174	22	16.3	794	18	AAW22720	Human serum albumi
102	22	16.3	191	13	AAR24764	hGH variant #52 -	175	21	15.6	110	22	AAO11740	Human polypeptide
103	22	16.3	191	13	AAR24765	hGH variant #53 -	176	21	15.6	119	22	AAO11740	Human polypeptide
104	22	16.3	191	13	AAR24766	hGH variant #54 -	177	21	15.6	124	22	AAO11015	Human polypeptide
105	22	16.3	191	13	AAR24767	hGH variant #55 -	178	21	15.6	131	22	AAO10924	Human polypeptide
106	22	16.3	191	13	AAR24768	hGH variant #56 -	179	21	15.6	131	22	AAO10982	Human polypeptide
107	22	16.3	191	13	AAR24769	hGH variant #57 -	180	21	15.6	134	20	AAW92265	Human anti-angio
108	22	16.3	191	13	AAR24770	hGH variant #58 -	181	21	15.6	191	20	AAV04397	Mutant human 22kDa
109	22	16.3	191	13	AAR24771	hGH variant #59 -	182	20	14.8	119	22	AAO2816	Human polypeptide
110	22	16.3	191	13	AAR24772	hGH variant #60 -	183	20	14.8	120	22	AAO11925	Human polypeptide
111	22	16.3	191	13	AAR24773	hGH variant #61 -	184	20	14.8	125	22	AAO11733	Human polypeptide
112	22	16.3	191	13	AAR24774	hGH variant #62 -	185	20	14.8	125	22	AAO11972	Human polypeptide
113	22	16.3	191	13	AAR24775	hGH variant #63 -	186	20	14.8	191	22	AAV49196	Growth hormone act
114	22	16.3	191	13	AAR24776	hGH variant #64 -	187	19	14.1	19	17	AAV15306	Placental lactogen
115	22	16.3	191	13	AAR28075	hGH variant #66 -	188	19	14.1	92	20	AAV42856	Human growth hormo
116	22	16.3	191	13	AAR24728	hGH variant #16 -	189	19	14.1	126	22	AAO4901	Human polypeptide
117	22	16.3	191	13	AAR28074	hGH variant #65 -	190	19	14.1	126	22	AAO11920	Human polypeptide
118	22	16.3	191	18	AAV38221	Human growth hormo	191	19	14.1	150	20	AAV42861	Chimeric protein,
119	22	16.3	191	18	AAV38222	Human growth hormo	192	19	14.1	191	20	AAW86013	Human growth hormo
120	22	16.3	191	18	AAV38220	Human growth hormo	193	19	14.1	191	22	AAV49202	Growth hormone act
121	22	16.3	191	18	AAV71289	Human growth hormo	194	19	14.1	214	20	AAV82801	Human growth hormo
122	22	16.3	191	20	AAV15809	Primary amino acid	195	19	14.1	310	11	AAV03255	Fusion protein of
123	22	16.3	191	20	AAV15810	Tagged human growt	196	18	13.3	118	22	AAO11923	Human polypeptide
124	22	16.3	191	20	AAV04396	Natural human 22kD	197	18	13.3	119	22	AAO11923	Human polypeptide
125	22	16.3	191	21	AAV78425	Human growth hormo	198	17	12.6	22	15	AAV46912	Human growth hormo
126	22	16.3	191	22	AAV19836	Human growth hormo	199	17	12.6	42	22	AAO8736	Human polypeptide
127	22	16.3	191	22	AAV49197	Growth hormone act	200	17	12.6	135	20	AAV92267	Human anti-angio
128	22	16.3	191	22	AAV49198	Growth hormone act	201	17	12.6	192	20	AAV92266	Human anti-angio
129	22	16.3	191	22	AAV49199	Growth hormone act	202	17	12.6	217	4	AAV30046	Sequence of human
130	22	16.3	192	10	AAV90129	Human growth hormo	203	17	12.6	246	22	AAV84938	Human FCTR4 polype
131	22	16.3	192	20	AAV92264	Human anti-angio	204	16	11.9	94	22	AAO4553	Human polypeptide
132	22	16.3	192	22	AAV82264	Recombinant Ala-hu	205	16	11.9	97	22	AAO11785	Human polypeptide
133	22	16.3	193	8	AAV70260	Met-Asp-human grow	206	16	11.9	113	22	AAO11020	Human polypeptide
134	22	16.3	194	20	AAV30530	Recombinant human	207	16	11.9	119	22	AAO11924	Human polypeptide
135	22	16.3	198	16	AAV76819	hGHV-2(88) growth	208	16	11.9	161	22	AAO10812	Human polypeptide
136	22	16.3	202	21	AAV93637	Amino acid sequenc	209	15	11.1	101	22	AAO10349	Human polypeptide
137	22	16.3	203	15	AAV49815	20K hGH (42Met).	210	15	11.1	123	22	AAO11017	Human polypeptide
138	22	16.3	212	7	AAV60234	Sequence of AP sig	211	15	11.1	141	22	AAO8620	Human polypeptide
139	22	16.3	214	7	AAV60232	Sequence of Escher	212	14	10.4	14	17	AAV15302	Placental lactogen
140	22	16.3	214	7	AAV60233	Sequence of Escher	213	14	10.4	140	22	AAO10977	Human polypeptide
141	22	16.3	214	11	AAV05043	Human growth hormo	214	13	9.6	119	22	AAO11019	Human polypeptide
142	22	16.3	214	13	AAV22230	Human growth hormo	215	13	9.6	129	22	AAO10490	Human polypeptide
143	22	16.3	214	18	AAV10425	Synthetic human gr	216	13	9.6	138	22	AAO10986	Human polypeptide
144	22	16.3	214	20	AAV31766	Human growth hormo	217	13	9.6	506	17	AAV96296	Human p21-protein
145	22	16.3	214	21	AAV78424	Human growth hormo	218	13	9.6	506	18	AAV13379	Human p21 activate
146	22	16.3	214	21	AAV78420	Human growth hormo	219	13	9.6	506	19	AAV47119	Human p21-activate
147	22	16.3	217	8	AAV60719	Sequence of pre an	220	13	9.6	506	19	AAV40815	Human hPAK65 prote
148	22	16.3	217	8	AAV71058	Sequence of human	221	13	9.6	506	20	AAV55959	Human STE20-relate
149	22	16.3	217	9	AAV80974	Sequence of human	222	13	9.6	506	21	AAV82606	Human p21-protein
150	22	16.3	217	11	AAV05169	Human growth hormo	223	13	9.6	506	21	AAV78108	Human p21-protein
151	22	16.3	217	15	AAV60516	Human somatotropin	224	12	8.9	190	22	AAV49203	Growth hormone act
152	22	16.3	217	16	AAV76818	Human growth hormo	225	12	8.9	190	22	AAV49204	Growth hormone act
153	22	16.3	217	16	AAV68453	Human growth hormo	226	12	8.9	190	22	AAV49205	Growth hormone act
154	22	16.3	217	19	AAV68453	Human growth hormo	227	12	8.9	190	22	AAV49206	Growth hormone act
155	22	16.3	217	21	AAV26769	Secretory cell pro	228	12	8.9	191	22	AAV49200	Growth hormone act
156	22	16.3	217	22	AAV10340	Human growth hormo	229	12	8.9	191	22	AAV49201	Growth hormone act
157	22	16.3	217	22	AAV84937	Human FCTR3 polype	230	11	8.1	11	17	AAV15301	Placental lactogen

231	11	8.1	19	21	101	Human growth hormo	304	11	8.1	217	10	AAP90914	Goat growth hormon
232	11	8.1	20	3	AAP20033	Partial sequence c	305	11	8.1	217	11	AAR05794	Ovine growth hormo
233	11	8.1	47	10	AAP91696	Bases 112-159 of m	306	11	8.1	217	12	AAR11905	Growth-inhibiting
234	11	8.1	184	5	AAP40169	Sequence of bovine	307	11	8.1	217	12	AAR12429	Growth-inhibiting
235	11	8.1	185	5	AAP40168	Sequence of bovine	308	11	8.1	217	12	AAR12430	Mutated bovine gro
236	11	8.1	188	5	AAP40167	Sequence of bovine	309	11	8.1	217	13	AAR28654	Bovine growth horm
237	11	8.1	189	5	AAP40166	Sequence of bovine	310	11	8.1	217	15	AAR72102	Bovine growth horm
238	11	8.1	190	7	AAP60012	Sequence of bovine	311	11	8.1	217	15	AAR58638	Bovine growth horm
239	11	8.1	190	7	AAP60014	Sequence of bovine	312	11	8.1	217	15	AAR72101	Bovine growth horm
240	11	8.1	190	20	AAY30528	Recombinant bovine	313	11	8.1	217	15	AAR72103	Bovine growth horm
241	11	8.1	191	5	AAP40165	Sequence of bovine	314	11	8.1	217	15	AAR72104	Bovine growth horm
242	11	8.1	191	9	AAP80475	Sequence encoded b	315	11	8.1	217	15	AAR72105	Bovine growth horm
243	11	8.1	191	9	AAP80385	Sequence of synthe	316	11	8.1	217	15	AAR72107	Bovine growth horm
244	11	8.1	191	10	AAP90291	Bovine somatotroph	317	11	8.1	217	15	AAR72108	Bovine growth horm
245	11	8.1	191	11	AAR07116	Recombinant bovine	318	11	8.1	217	15	AAR72109	Bovine growth horm
246	11	8.1	191	11	AAR06384	Animal somatotropi	319	11	8.1	217	15	AAR72110	Bovine growth horm
247	11	8.1	191	11	AAR07595	Animal somatotropi	320	11	8.1	217	15	AAR72111	Bovine growth horm
248	11	8.1	191	11	AAR07596	Animal somatotropi	321	11	8.1	217	15	AAR72113	Bovine growth horm
249	11	8.1	191	11	AAR06513	Bovine somatotropi	322	11	8.1	217	15	AAR72114	Bovine growth horm
250	11	8.1	191	11	AAR07635	Animal somatotropi	323	11	8.1	217	15	AAR72115	Bovine growth horm
251	11	8.1	191	12	AAR07636	Animal somatotropi	324	11	8.1	217	15	AAR72116	Bovine growth horm
252	11	8.1	191	12	AAR10625	Gln-121 bovine Som	325	11	8.1	217	15	AAR72117	Bovine growth horm
253	11	8.1	191	12	AAR10626	Leu-112 + Gln-121	326	11	8.1	217	15	AAR72118	Bovine growth horm
254	11	8.1	191	12	AAR10627	Gly-125 + Arg-126	327	11	8.1	217	15	AAR72119	Bovine growth horm
255	11	8.1	191	12	AAR10950	Bovine Somatotropi	328	11	8.1	217	15	AAR72120	Bovine growth horm
256	11	8.1	191	12	AAR10951	Bovine Somatotropi	329	11	8.1	217	15	AAR72121	Bovine growth horm
257	11	8.1	191	12	AAR10953	Bovine Somatotropi	330	11	8.1	217	15	AAR72122	Bovine growth horm
258	11	8.1	191	12	AAR10954	Bovine Somatotropi	331	11	8.1	217	15	AAR72123	Bovine growth horm
259	11	8.1	191	12	AAR10955	Bovine Somatotropi	332	11	8.1	217	18	AAW40464	Bovine growth horm
260	11	8.1	191	12	AAR10956	Bovine Somatotropi	333	11	8.1	217	18	AAW40465	Bovine growth horm
261	11	8.1	191	12	AAR10957	Bovine Somatotropi	334	11	8.1	217	18	AAW40466	Bovine growth horm
262	11	8.1	191	12	AAR10958	Bovine Somatotropi	335	11	8.1	217	18	AAW40467	Bovine growth horm
263	11	8.1	191	12	AAR10959	Bovine Somatotropi	336	11	8.1	217	18	AAW40468	Bovine growth horm
264	11	8.1	191	12	AAR10960	Pro-119 Bovine Som	337	11	8.1	217	18	AAW40469	Bovine growth horm
265	11	8.1	191	12	AAR10961	Bovine Somatotropi	338	11	8.1	217	18	AAW40470	Bovine growth horm
266	11	8.1	191	12	AAR10962	Bovine Somatotropi	339	11	8.1	217	18	AAW40471	Bovine growth horm
267	11	8.1	191	12	AAR10963	Bovine Somatotropi	340	11	8.1	217	18	AAW40472	Bovine growth horm
268	11	8.1	191	12	AAR10964	Bovine Somatotropi	341	11	8.1	217	18	AAW40473	Bovine growth horm
269	11	8.1	191	12	AAR10965	Bovine Somatotropi	342	11	8.1	217	18	AAW40474	Bovine growth horm
270	11	8.1	191	12	AAR10966	Bovine Somatotropi	343	11	8.1	217	18	AAW40475	Bovine growth horm
271	11	8.1	191	12	AAR10967	Bovine Somatotropi	344	11	8.1	217	18	AAW40476	Bovine growth horm
272	11	8.1	191	12	AAR10968	Bovine Somatotropi	345	11	8.1	217	18	AAW40477	Bovine growth horm
273	11	8.1	191	12	AAR10969	Bovine Somatotropi	346	11	8.1	217	18	AAW40478	Bovine growth horm
274	11	8.1	191	12	AAR10970	Bovine Somatotropi	347	11	8.1	217	18	AAW40479	Bovine growth horm
275	11	8.1	191	12	AAR10971	Bovine Somatotropi	348	11	8.1	217	18	AAW40480	Bovine growth horm
276	11	8.1	191	12	AAR10972	Bovine Somatotropi	349	11	8.1	217	18	AAW40481	Bovine growth horm
277	11	8.1	191	12	AAR10973	Bovine Somatotropi	350	11	8.1	217	18	AAW40482	Bovine growth horm
278	11	8.1	191	14	AAR35432	Ovine growth hormo	351	11	8.1	217	18	AAW40483	Bovine growth horm
279	11	8.1	191	18	AAW37119	Bovine somatotropi	352	11	8.1	217	18	AAW40484	Bovine growth horm
280	11	8.1	191	18	AAW37122	Bovine somatotropi	353	11	8.1	217	18	AAW40485	Bovine growth horm
281	11	8.1	191	18	AAW37120	Bovine somatotropi	354	11	8.1	217	18	AAW40486	Bovine growth horm
282	11	8.1	191	18	AAW37121	Bovine somatotropi	355	11	8.1	217	18	AAW40487	Bovine growth horm
283	11	8.1	191	18	AAW31952	Bovine somatotropi	356	11	8.1	217	18	AAW40488	Bovine growth horm
284	11	8.1	191	18	AAW31953	Bovine somatotropi	357	11	8.1	217	18	AAW40489	Bovine growth horm
285	11	8.1	191	18	AAW17520	Bovine somatotropi	358	11	8.1	217	18	AAW40490	Bovine growth horm
286	11	8.1	191	21	AAB03937	Synthetic polypept	359	11	8.1	217	18	AAW37691	Bovine growth horm
287	11	8.1	192	4	AAP30080	Sequence encoded b	360	11	8.1	217	18	AAW40492	Bovine growth horm
288	11	8.1	192	6	AAP50640	Sequence of bovine	361	11	8.1	217	18	AAW40493	Bovine growth horm
289	11	8.1	192	7	AAP61742	Bovine growth horm	362	11	8.1	217	18	AAW40494	Bovine growth horm
290	11	8.1	192	9	AAP80599	22K rbGH encoded b	363	11	8.1	217	18	AAW09612	Bovine growth horm
291	11	8.1	192	11	AAR07597	Animal somatotropi	364	11	8.1	217	20	AAW95604	Bos taurus somatot
292	11	8.1	192	11	AAR07598	Animal somatotropi	365	11	7.4	21	21	AAV78431	Human growth hormo
293	11	8.1	199	14	AAR33853	EK-bGH. Synthetic	366	10	7.4	190	7	AAP60013	Sequence of porcine
294	11	8.1	199	14	AAR37422	Bovine Growth Horm	367	9	6.7	48	10	AAP91499	Bases 112-159 of p
295	11	8.1	216	5	AAP40164	Sequence of bovine	368	9	6.7	48	10	AAP91697	Bases 112-159 of c
296	11	8.1	216	15	AAR72106	Bovine growth horm	369	9	6.7	48	10	AAP91698	Bases 112-159 of r
297	11	8.1	216	15	AAR72112	Bovine growth horm	370	9	6.7	54	22	AAM96093	Human reproductive
298	11	8.1	217	3	AAP20027	Sequence of bovine	371	9	6.7	183	13	AAR20987	Sequence of delta
299	11	8.1	217	5	AAP40015	Ovine pre-growth h	372	9	6.7	183	13	AAR20989	Sequence of avian
300	11	8.1	217	5	AAP40219	Sequence of bovine	373	9	6.7	190	7	AAP60015	Sequence of delta
301	11	8.1	217	5	AAP40107	Sequence encoded b	374	9	6.7	190	13	AAR25994	Mink growth hormon
302	11	8.1	217	5	AAP40104	Sequence encoded b	375	9	6.7	190	15	AAR53629	Mature mink growth
303	11	8.1	217	7	AAP60191	Cattle growth horm	376	9	6.7	190	21	AAV78427	Porcine growth hor

377	9	6.7	191	9	AA00514	Recombinant porcine	450	7	5.2	46	22	AA01640	Amino acid sequenc
378	9	6.7	191	9	AA00771	Sequence of synthe	451	7	5.2	46	22	AA01641	Amino acid sequenc
379	9	6.7	191	14	AA03044	Mink Growth hormon	452	7	5.2	46	22	AA01642	Amino acid sequenc
380	9	6.7	191	15	AA049874	Porcine ST(1-191).	453	7	5.2	48	10	AA01695	Bases 112-159 of e
381	9	6.7	191	17	AA089477	Pig somatotropin.	454	7	5.2	63	18	AA035264	Synthetic porcine
382	9	6.7	192	21	AA003153	Chicken growth hor	455	7	5.2	110	21	AA043051	Human ORFX ORP2815
383	9	6.7	193	5	AA040435	Sequence of swine	456	7	5.2	117	22	AA075677	Human colon cancer
384	9	6.7	193	11	AA030249	Recombinant Porcin	457	7	5.2	123	22	AA004556	Human polypeptide
385	9	6.7	193	11	AA03251	Recombinant Ovine	458	7	5.2	143	21	AA040458	Human ORFX ORP222
386	9	6.7	193	11	AA03252	Recombinant Equine	459	7	5.2	150	18	AA035281	Porcine somatotrop
387	9	6.7	193	11	AA03250	Recombinant Bovine	460	7	5.2	154	13	AA022751	Human growth hormo
388	9	6.7	193	11	AA03254	Recombinant Avian	461	7	5.2	156	21	AA058031	Arabidopsis thalia
389	9	6.7	193	12	AA015739	Recombinant Cys 10	462	7	5.2	189	13	AA043444	Porcine somatotrop
390	9	6.7	193	13	AA025647	Recombinant porcine	463	7	5.2	192	21	AA028658	Arabidopsis thalia
391	9	6.7	193	13	AA025648	Recombinant porcine	464	7	5.2	192	21	AA053689	Arabidopsis thalia
392	9	6.7	193	13	AA025649	Recombinant porcine	465	7	5.2	193	13	AA025654	Recombinant porcine
393	9	6.7	193	13	AA025650	Recombinant porcine	466	7	5.2	193	13	AA025656	Recombinant porcine
394	9	6.7	193	13	AA025651	Recombinant porcine	467	7	5.2	193	13	AA025657	Recombinant porcine
395	9	6.7	193	13	AA025652	Recombinant porcine	468	7	5.2	193	13	AA025658	Recombinant porcine
396	9	6.7	193	13	AA025653	Recombinant porcine	469	7	5.2	193	13	AA025659	Recombinant porcine
397	9	6.7	193	13	AA025661	Recombinant porcine	470	7	5.2	193	13	AA025660	Recombinant porcine
398	9	6.7	193	13	AA025663	Recombinant porcine	471	7	5.2	193	13	AA025662	Recombinant porcine
399	9	6.7	193	16	AA071391	CI83,191E-pst. Su	472	7	5.2	193	13	AA025664	Recombinant porcine
400	9	6.7	193	20	AA030527	Recombinant porcine	473	7	5.2	193	13	AA025665	Recombinant porcine
401	9	6.7	193	20	AA030529	Recombinant porcine	474	7	5.2	193	13	AA025666	Recombinant porcine
402	9	6.7	194	11	AA030253	Recombinant Human	475	7	5.2	209	8	AA070341	Bel growth hormone
403	9	6.7	199	20	AA093607	Pig growth hormone	476	7	5.2	209	9	AA081165	GH-1 protein. AA
404	9	6.7	210	5	AA040685	Sequence of porcine	477	7	5.2	216	20	AA095603	Equus caballus som
405	9	6.7	212	9	AA080852	Sequence encoded b	478	7	5.2	235	22	AA029401	Human G protein-co
406	9	6.7	216	5	AA040215	Sequence of turkey	479	7	5.2	328	22	AAE01337	Human gene 24 enco
407	9	6.7	216	5	AA040214	Sequence encoded b	480	7	5.2	328	22	AAE01338	Human gene 24 enco
408	9	6.7	216	13	AA022592	Mink pre-growth ho	481	7	5.2	352	21	AA009955	Arabidopsis thalia
409	9	6.7	216	15	AA057492	Val184, Ser186-can	482	7	5.2	352	22	AB052897	Escherichia coli p
410	9	6.7	216	15	AA057493	Gly184, Ala186-can	483	7	5.2	358	21	AA009954	Arabidopsis thalia
411	9	6.7	216	15	AA057780	Silver fox growth	484	7	5.2	360	21	AA009953	Arabidopsis thalia
412	9	6.7	216	20	AA095605	Sus scrofa somatot	485	7	5.2	465	22	AA082291	S. epidermidis ope
413	9	6.7	217	21	AA079566	Insulin secretory	486	7	5.2	466	21	AA036664	Arabidopsis thalia
414	9	6.7	217	22	AA036000	Ostrich growth hor	487	7	5.2	466	21	AA039612	Arabidopsis thalia
415	9	6.7	218	15	AA036330	Mature mink growth	488	7	5.2	467	22	AA067666	Propionibacterium
416	9	6.7	342	22	AA070427	Npro-PGH fusion pr	489	7	5.2	478	21	AA036663	Arabidopsis thalia
417	8	5.9	22	21	AA034313	Human secreted pro	490	7	5.2	478	21	AA039611	Arabidopsis thalia
418	8	5.9	43	6	AA051216	Human growth hormo	491	7	5.2	485	21	AA099658	Human GTPase assoc
419	8	5.9	43	22	AA090851	Growth hormone pep	492	7	5.2	536	22	AAU01205	Human caspase recr
420	8	5.9	48	10	AA091497	Bases 112-159 of b	493	7	5.2	565	22	AB057959	Drosophila melanog
421	8	5.9	48	10	AA091500	Bases 112-159 of o	494	7	5.2	614	21	AA036662	Arabidopsis thalia
422	8	5.9	49	20	AA042855	Human growth hormo	495	7	5.2	618	21	AA039610	Arabidopsis thalia
423	8	5.9	49	22	AA082542	Human immune/haema	496	7	5.2	763	15	AA049790	Sequence of specia
424	8	5.9	57	22	AA004797	Human polypeptide	497	7	5.2	763	18	AA026407	Matrix/scaffold-as
425	8	5.9	65	22	AB023044	Protein #5043 enco	498	7	5.2	763	18	AA008136	Human cytokine res
426	8	5.9	65	22	AA031150	Peptide #5187 enco	499	7	5.2	763	20	AA092415	Human SATB1 protei
427	8	5.9	70	12	AA010223	N-terminal fragmen	500	7	5.2	763	21	AA079955	Human CR4 protein.
428	8	5.9	70	13	AA022031	Sequence of the fi	501	7	5.2	864	22	AA094031	Human protein sequ
429	8	5.9	107	20	AA042860	hGH-mini-proinsuli	502	7	5.2	942	22	AA080046	Human protein SEQ
430	8	5.9	190	14	AA043308	Sturgeon growth ho	503	7	5.2	993	22	AAE01339	Human gene 24 enco
431	8	5.9	190	14	AA043309	Sturgeon growth ho	504	7	5.2	993	22	AA093308	Human protein sequ
432	8	5.9	193	13	AA025655	Recombinant porcine	505	7	5.2	1014	20	AA035600	C. pneumoniae prot
433	8	5.9	256	9	AA080598	Chicken/platelet d	506	7	5.2	1241	22	AA079062	Human protein SEQ
434	8	5.9	256	14	AA040968	CGH/PDGF Bv-sis fu	507	7	5.2	1294	22	AB063502	Drosophila melanog
435	8	5.9	256	15	AA063473	CGH/PDGF B fusion	508	6	4.4	7	22	AA062804	Amino acid sequenc
436	7	5.2	8	15	AA035398	Pig somatotropin t	509	6	4.4	8	22	AA090852	Growth hormone pep
437	7	5.2	11	6	AA050473	Determinant site o	510	6	4.4	9	12	AA012183	Porcine somatotrop
438	7	5.2	11	15	AA053597	Pig somatotropin t	511	6	4.4	9	15	AA055776	Pig GH peptide 110
439	7	5.2	15	18	AA035276	Epitope comprising	512	6	4.4	9	18	AA035271	Epitope comprising
440	7	5.2	17	15	AA049704	Pig GH peptide 122	513	6	4.4	10	14	AA033943	Wild type hGH. Ho
441	7	5.2	17	18	AA035275	Epitope comprising	514	6	4.4	10	19	AA069540	Human 20K growth h
442	7	5.2	18	21	AA078430	Human growth hormo	515	6	4.4	10	22	AA086550	Saccharomyces cere
443	7	5.2	21	15	AA049715	Sheep or pig GH pe	516	6	4.4	13	17	AA098156	Blowfly PM48 antiq
444	7	5.2	21	18	AA035273	Epitope comprising	517	6	4.4	14	21	AA025869	C-terminal fragmen
445	7	5.2	21	21	AA088025	Human growth hormo	518	6	4.4	15	7	AA061488	Peptide inducing h
446	7	5.2	23	9	AA080476	Sequence of proxim	519	6	4.4	15	19	AA069542	Human 20K growth h
447	7	5.2	31	18	AA035274	Epitope comprising	520	6	4.4	16	19	AA062380	Antithrombotic pep
448	7	5.2	32	10	AA091493	Antigenic equivale	521	6	4.4	17	21	AA025905	Ichthyophthirius m
449	7	5.2	45	10	AA091297	Amino acids 1-16 O	522	6	4.4	19	9	AA080553	Partial sequence o



523	6	4.4	19	10	AAP90942	Variant of residue	596	6	4.4	146	22	AAO11565	Human polypeptide
524	6	4.4	20	21	RAB25870	C-terminal fragmen	597	6	4.4	155	20	AAW97706	Staphylococcus aur
525	6	4.4	20	22	ABB36299	Peptide #3805 enco	598	6	4.4	155	21	AAW38411	Arabidopsis thalia
526	6	4.4	20	22	ABB21660	Protein #3659 enco	599	6	4.4	155	22	AAW06762	Human foetal prote
527	6	4.4	20	22	AAW17295	Peptide #3729 enco	600	6	4.4	156	22	ABG25334	Novel human diagno
528	6	4.4	20	22	AAW29793	Peptide #3830 enco	601	6	4.4	157	22	AAW57771	Human protein sequ
529	6	4.4	20	22	AAW12466	Human 5' EST secre	602	6	4.4	159	21	AAW23777	Arabidopsis thalia
530	6	4.4	25	20	AAW64665	Synthetic gene cas	603	6	4.4	160	22	AAW63765	Human prostate can
531	6	4.4	26	19	AAW64665	Peptide #5822 enco	604	6	4.4	161	21	AAW33005	Pinus radiata tran
532	6	4.4	27	22	ABB38316	Protein #5494 enco	605	6	4.4	162	21	AAW33203	Arabidopsis thalia
533	6	4.4	27	22	ABB23495	Human brain expres	606	6	4.4	165	21	AAW52613	Helicobacter pylor
534	6	4.4	27	22	AAW58932	Human bone marrow	607	6	4.4	165	22	ABG01274	Novel human diagno
535	6	4.4	27	22	AAW11458	Peptide #5540 enco	608	6	4.4	166	22	AAU17494	Novel signal trans
536	6	4.4	27	22	AAW19106	Peptide #5792 enco	609	6	4.4	169	21	AAW38410	Arabidopsis thalia
537	6	4.4	27	22	AAW31755	Human growth hormo	610	6	4.4	170	22	ABG00899	Novel human diagno
538	6	4.4	36	4	AAP30655	Human immune/haema	611	6	4.4	170	22	AAW79413	Human protein SEQ
539	6	4.4	36	22	AAW89976	CORE peptide/haema	612	6	4.4	174	21	AAW23776	Arabidopsis thalia
540	6	4.4	45	22	AAW49180	Protein #1740 enco	613	6	4.4	178	20	AAW43527	Mouse interleukin-
541	6	4.4	50	22	AAW87442	Human immune/haema	614	6	4.4	178	20	AAW43528	Rat interleukin-1
542	6	4.4	51	22	AAU53288	Protein #1744 enco	615	6	4.4	178	20	AAW33280	Rat interleukin-1
543	6	4.4	51	22	AAU54523	Protein #1794 enco	616	6	4.4	178	20	AAW33281	Mouse interleukin-
544	6	4.4	54	22	ABB29143	Peptide #1809 enco	617	6	4.4	178	22	AAW66665	Mouse interleukin-
545	6	4.4	54	22	ABB34303	Human brain expres	618	6	4.4	178	22	AAW66666	Rat interleukin-1
546	6	4.4	54	22	AAW55098	Human bone marrow	619	6	4.4	180	22	AAW81557	S. epidermidis ope
547	6	4.4	54	22	AAW67490	Peptide #1740 enco	620	6	4.4	181	22	AAW40801	Human polypeptide
548	6	4.4	54	22	AAW27780	Peptide #1817 enco	621	6	4.4	182	21	AAW53268	Human colon cancer
549	6	4.4	54	22	AAW03062	Peptide #1744 enco	622	6	4.4	183	21	AAW25257	Eucalyptus grandis
550	6	4.4	54	22	AAW63165	Human secreted pro	623	6	4.4	183	22	ABG01447	Novel human diagno
551	6	4.4	55	21	AAW40432	Human ORFX ORF196	624	6	4.4	183	22	ABG05819	Novel human diagno
552	6	4.4	55	21	AAW21913	Toxoplasma H11 ant	625	6	4.4	185	21	AAW14880	Arabidopsis thalia
553	6	4.4	56	13	AAW21913	Peptide #9469 enco	626	6	4.4	187	22	AAU16537	Human novel secret
554	6	4.4	56	22	AAW41963	Human brain expres	627	6	4.4	188	21	AAW42614	Human ORFX ORF2378
555	6	4.4	56	22	AAW62840	Human bone marrow	628	6	4.4	188	22	AAU16114	Human novel secret
556	6	4.4	56	22	AAW35764	Peptide #9801 enco	629	6	4.4	190	19	AAW42097	Human Rab protein
557	6	4.4	56	22	AAW62371	Antithrombotic pep	630	6	4.4	192	22	ABG05820	Novel human diagno
558	6	4.4	61	22	AAW61124	Human polypeptide	631	6	4.4	192	22	AAU25603	Human G protein-Co
559	6	4.4	63	22	AAU39898	Protein #1740 enco	632	6	4.4	194	22	AAU51451	Propionibacterium
560	6	4.4	63	22	AAW94785	Human reproductive	633	6	4.4	194	22	AAW00862	Human bone marrow
561	6	4.4	66	22	AAU44821	Protein #1740 enco	634	6	4.4	196	22	ABW60400	Drosophila melanog
562	6	4.4	66	22	AAW90086	C glutamicum prote	635	6	4.4	196	22	AAW93922	Human polypeptide,
563	6	4.4	67	22	AAU50022	Protein #1740 enco	636	6	4.4	196	22	AAW35402	Replication protei
564	6	4.4	76	22	AAW88458	Human immune/haema	637	6	4.4	197	15	AAW56498	TATA-binding prote
565	6	4.4	78	22	ABG02468	Novel human diagno	638	6	4.4	197	17	AAW06088	Drosophila TATA-bi
566	6	4.4	81	21	AAW03501	Human secreted pro	639	6	4.4	197	18	AAW25024	TATA-binding prote
567	6	4.4	82	20	AAW11800	Human 5' EST secre	640	6	4.4	199	14	AAW34398	Helicobacter pylor
568	6	4.4	86	21	AAW96882	Zea mays protein f	641	6	4.4	199	19	AAW38760	Rat prostaglandin
569	6	4.4	90	22	AAW65599	Protein #1740 enco	642	6	4.4	199	22	AAU35692	Helicobacter pylor
570	6	4.4	95	22	AAW75690	Human colon cancer	643	6	4.4	199	22	AAU35874	Helicobacter pylor
571	6	4.4	96	22	AAU10461	Human polypeptide	644	6	4.4	203	21	AAW42821	Human ORFX ORF2585
572	6	4.4	99	22	AAW62695	Protein #1740 enco	645	6	4.4	207	20	AAW35240	Chlamydia pneumoni
573	6	4.4	100	17	AAW90779	HCV antigen, D9020	646	6	4.4	210	22	AAW36659	Mouse CD7 protein
574	6	4.4	100	21	AAW36366	Arabidopsis thalia	647	6	4.4	210	22	AAW94107	Human protein sequ
575	6	4.4	102	22	AAW61976	Protein #1740 enco	648	6	4.4	212	22	ABG00983	Novel human diagno
576	6	4.4	103	22	AAW06424	Human polypeptide	649	6	4.4	213	22	ABW12391	Human bone marrow
577	6	4.4	106	22	AAW67279	Protein #1740 enco	650	6	4.4	214	22	ABW12391	Mouse olfactory re
578	6	4.4	107	20	AAW29509	Human lung tumour-	651	6	4.4	215	22	AAW98598	Mouse olfactory re
579	6	4.4	107	21	AAW44450	Human lung tumour-	652	6	4.4	216	22	AAW98588	Arabidopsis thalia
580	6	4.4	107	22	AAW13791	Human lung tumour-	653	6	4.4	224	21	AAW40035	Arabidopsis thalia
581	6	4.4	107	22	AAW91557	Human immune/haema	654	6	4.4	224	21	AAW44268	Chlamydia pneumoni
582	6	4.4	107	22	AAW00130	Human polypeptide	655	6	4.4	225	20	AAW35400	Amino acid sequenc
583	6	4.4	111	22	ABG00969	Novel human diagno	656	6	4.4	235	20	AAW35400	H. pylori transmem
584	6	4.4	117	21	AAW03847	Human secreted pro	657	6	4.4	237	18	AAW20709	Extended human sec
585	6	4.4	120	22	AAW44177	Protein #1740 enco	658	6	4.4	238	20	AAW36088	Arabidopsis thalia
586	6	4.4	127	22	ABW66557	Drosophila melanog	659	6	4.4	242	21	AAW04903	Arabidopsis thalia
587	6	4.4	130	22	ABG20501	Novel human diagno	660	6	4.4	242	21	AAW59416	Human secreted pro
588	6	4.4	130	22	AAW76048	Human colon cancer	661	6	4.4	248	22	AAW73449	Neisseria gonorrhe
589	6	4.4	132	22	ABG01519	Novel human diagno	662	6	4.4	253	21	AAW75451	Neisseria meningit
590	6	4.4	133	22	AAW93301	Human protein HP10	663	6	4.4	253	21	AAW75451	Neisseria meningit
591	6	4.4	136	19	AAW40228	Bovine myelin P2 p	664	6	4.4	255	22	ABW66124	Drosophila melanog
592	6	4.4	136	19	AAW40227	Human myelin P2 pr	665	6	4.4	255	22	AAU27717	Human full-length
593	6	4.4	139	18	AAW07852	(DSM 10104) human	666	6	4.4	262	18	AAW20758	H. pylori cytolas
594	6	4.4	139	21	AAW40527	Human ORFX ORF291	667	6	4.4	264	21	AAW04977	Arabidopsis thalia
595	6	4.4	140	22	AAW82261	Human immune/haema	668	6	4.4	264	21	AAW40069	Arabidopsis thalia

669	6	4.4	264	22	AAM40361	Human polypeptide	742	6	4.4	411	20	AAM68011	Yeast immunophilin
670	6	4.4	264	22	AAB94175	Human protein sequ	743	6	4.4	412	17	AAR88760	FHV capsid protein
671	6	4.4	266	5	AAP40066	Sequence of HLA-DR	744	6	4.4	415	17	AAR88759	FHV capsid protein
672	6	4.4	272	19	AAW98616	H. pylori GHPQ 218	745	6	4.4	416	17	AAW07325	Oil palm ACP thioes
673	6	4.4	281	21	AAW41300	Arabidopsis thalia	746	6	4.4	418	22	ABG62267	Drosophila melanog
674	6	4.4	281	21	AYF54150	D-ribulose-5-phosp	747	6	4.4	418	22	ABG27394	Novel human diagno
675	6	4.4	282	21	AG404976	Arabidopsis thalia	748	6	4.4	425	21	AAB43667	Human cancer assoc
676	6	4.4	282	21	AG404068	Arabidopsis thalia	749	6	4.4	425	22	AAU17061	Novel signal trans
677	6	4.4	285	21	AY933265	Amino acid sequenc	750	6	4.4	428	18	AAW31516	Death domain conta
678	6	4.4	285	21	AY933292	Amino acid sequenc	751	6	4.4	428	20	AAW95537	Death domain conta
679	6	4.4	287	20	AY335566	B. oleracea CBF ho	752	6	4.4	428	21	AAB36264	Human death domain
680	6	4.4	290	22	ABW57881	Drosophila melanog	753	6	4.4	429	17	AAW02083	Nutmeg class II th
681	6	4.4	290	22	ABG27708	Novel human diagno	754	6	4.4	431	22	AAB61906	Maize MSI-like pro
682	6	4.4	291	22	ABW10444	Human cDNA SEQ ID	755	6	4.4	432	22	AAW93370	Human polypeptide,
683	6	4.4	291	22	AAU233580	Novel human enzyme	756	6	4.4	434	22	AAU33491	Enterococcus faeca
684	6	4.4	297	22	AAW41541	Human polypeptide	757	6	4.4	436	21	AAG30975	Arabidopsis thalia
685	6	4.4	298	19	AAW41153	RBE1 transcription	758	6	4.4	440	12	AAU11515	Soybean chlorotic
686	6	4.4	308	22	ABB65833	Drosophila melanog	759	6	4.4	445	21	AAG07560	Arabidopsis thalia
687	6	4.4	310	22	AAM39755	Human polypeptide	760	6	4.4	445	21	AAG52039	Arabidopsis thalia
688	6	4.4	316	21	AAW04902	Arabidopsis thalia	761	6	4.4	445	22	ABB64465	Drosophila melanog
689	6	4.4	316	21	AAW59415	Arabidopsis thalia	762	6	4.4	446	21	AAG21121	Arabidopsis thalia
690	6	4.4	323	22	ABG03330	Novel human diagno	763	6	4.4	448	22	AAU35058	Enterococcus faeca
691	6	4.4	323	22	AAB95337	Human protein sequ	764	6	4.4	454	21	AAG30974	Arabidopsis thalia
692	6	4.4	325	22	ABW12474	Human bone marrow	765	6	4.4	455	22	ABW21982	Drosophila melanog
693	6	4.4	325	22	ABW93846	Human protein sequ	766	6	4.4	463	21	AAG52038	Arabidopsis thalia
694	6	4.4	329	22	ABG30054	Novel human diagno	767	6	4.4	464	22	AAB95171	Human protein sequ
695	6	4.4	331	20	AAU37572	Chlamydia trachoma	768	6	4.4	466	22	AAU52260	Propionibacterium
696	6	4.4	336	21	AAU95044	Candida albicans p	769	6	4.4	466	22	AAB94354	Human protein sequ
697	6	4.4	340	22	AAW93541	Human polypeptide,	770	6	4.4	467	22	AAB98450	Human papillomavir
698	6	4.4	343	21	AAB08505	Amino acid sequenc	771	6	4.4	468	21	AAB25860	55kD i-antigen pro
699	6	4.4	345	22	ABW67077	Drosophila melanog	772	6	4.4	468	21	AAB25882	Synthetic 55kD i-a
700	6	4.4	348	21	AAW40034	Arabidopsis thalia	773	6	4.4	468	21	AAU97177	55 kDa immobilizat
701	6	4.4	348	21	AAG44267	Arabidopsis thalia	774	6	4.4	469	12	AAU15510	Tomato ACC synthas
702	6	4.4	349	22	ABW50681	C. elegans i-beta-	775	6	4.4	469	21	AAG43666	Arabidopsis thalia
703	6	4.4	353	21	AAW17445	Arabidopsis thalia	776	6	4.4	476	21	AAU77959	A. thaliana enviro
704	6	4.4	353	22	ABW58942	Drosophila melanog	777	6	4.4	484	21	AAW43695	Human cancer assoc
705	6	4.4	355	17	AAW98154	Blowfly PM48 antig	778	6	4.4	484	22	AAG75119	Human colon cancer
706	6	4.4	358	21	AAW83004	Human Homer-3 Ho	779	6	4.4	486	22	ABG23447	Novel human diagno
707	6	4.4	359	17	AAW97868	Hamster polysialyl	780	6	4.4	486	22	ABG24295	Novel human diagno
708	6	4.4	361	21	AAW13695	Chlamydia sp. prot	781	6	4.4	489	22	AAG82769	S. epidermidis ope
709	6	4.4	361	21	AAW84607	A human membrane a	782	6	4.4	492	22	ABG18052	Novel human diagno
710	6	4.4	361	22	AAW83263	Protein encoded by	783	6	4.4	496	21	AAW25531	Eucalyptus grandis
711	6	4.4	362	17	AAW02082	Nutmeg Class II th	784	6	4.4	498	22	ABW47285	Enterococcus faeca
712	6	4.4	362	22	ABW60115	Drosophila melanog	785	6	4.4	501	21	AAW08508	Hybrid of fibronect
713	6	4.4	363	22	AAW96616	Putative P. abyssi	786	6	4.4	504	20	AAW93429	A. thaliana EL3 pr
714	6	4.4	364	22	AAW74049	Human colon cancer	787	6	4.4	507	22	AAB60080	Human breast cance
715	6	4.4	371	22	AAW94407	Human protein sequ	788	6	4.4	511	20	AAW78475	Autographa califor
716	6	4.4	372	18	AAW25048	BRCA2 cancer susce	789	6	4.4	521	22	ABW57765	Drosophila melanog
717	6	4.4	372	22	ABG09514	Novel human diagno	790	6	4.4	523	22	AAU34227	Staphylococcus aur
718	6	4.4	373	21	AAW21123	Arabidopsis thalia	791	6	4.4	525	22	AAU37058	Staphylococcus aur
719	6	4.4	381	22	ABG24300	Novel human diagno	792	6	4.4	530	20	AAW78476	Baculovirus ISP pr
720	6	4.4	382	22	AAW95608	Human protein sequ	793	6	4.4	533	19	AAW59442	Hordeum vulgare ML
721	6	4.4	383	22	ABG24293	Novel human diagno	794	6	4.4	533	19	AAW59443	Hordeum vulgare ML
722	6	4.4	385	21	AAW21122	Arabidopsis thalia	795	6	4.4	533	21	AAB03401	Barley Mlo protein
723	6	4.4	387	22	AAU41162	Propionibacterium	796	6	4.4	533	22	ABW59712	Drosophila melanog
724	6	4.4	388	22	AAW94002	Human protein sequ	797	6	4.4	534	21	AAB16317	Eucalyptus grandis
725	6	4.4	388	22	AAW95621	Human protein sequ	798	6	4.4	544	19	AAW59445	Hordeum vulgare ML
726	6	4.4	390	20	AAU42225	Human Toso protein	799	6	4.4	549	22	ABG13328	Novel human diagno
727	6	4.4	390	20	AAU17496	Human Toso protein	800	6	4.4	549	22	ABG35686	Novel human diagno
728	6	4.4	390	20	AAU05001	Human PIGRL-1 prot	801	6	4.4	552	22	ABW11079	Human Cdc42-bindin
729	6	4.4	390	22	ABG00984	Novel human diagno	802	6	4.4	556	22	AAG92747	C glutamicum prote
730	6	4.4	396	21	AAG43668	Arabidopsis thalia	803	6	4.4	557	22	ABG07606	Novel human diagno
731	6	4.4	400	21	ABW08509	Hybrid of fibronect	804	6	4.4	562	21	AAU67579	Human death induc
732	6	4.4	406	21	AAU94572	Human secreted pro	805	6	4.4	562	22	AAB93638	Human protein sequ
733	6	4.4	406	22	AAW47411	Human membrane ass	806	6	4.4	570	16	AAW67380	Jack bean urease u
734	6	4.4	406	22	AAW88600	Human hydrophobic	807	6	4.4	581	22	ABW63013	Drosophila melanog
735	6	4.4	407	17	AAW88755	Flock house virus	808	6	4.4	604	21	AAB43581	Human cancer assoc
736	6	4.4	407	17	AAW88758	FHV capsid protein	809	6	4.4	613	16	AAW74632	QETR ethylene resp
737	6	4.4	407	17	AAW22142	Flock House virus	810	6	4.4	613	19	AAW73122	A. thaliana ethyle
738	6	4.4	408	21	AAW43667	Arabidopsis thalia	811	6	4.4	614	21	AAU67580	Murine death induc
739	6	4.4	409	17	AAW88756	FHV capsid protein	812	6	4.4	615	16	AAW74630	Tomato fGTR1 ethy
740	6	4.4	410	17	AAW88757	FHV capsid protein	813	6	4.4	615	19	AAW73126	Tomato ethylene re
741	6	4.4	410	22	AAW03641	Human extracellular	814	6	4.4	615	22	ABW66477	Drosophila melanog

815	6	4.4	618	22	AAB96215	Putative P. abyssi	888	6	4.4	914	12	AAR15785	B.thuringiensis to
816	6	4.4	619	21	AAB42761	Human ORFX ORF2525	889	6	4.4	917	18	AAW37437	Rat hexokinase II.
817	6	4.4	623	21	AAG92236	C glutamicum prote	890	6	4.4	917	18	AAW37429	Rat hexokinase II.
818	6	4.4	625	22	AAB79455	Corynebacterium gl	891	6	4.4	917	18	AAW23793	AS-30D tumour Type
819	6	4.4	630	22	AAU36524	Pseudomonas aerugi	892	6	4.4	918	22	ABB59819	Drosophila melanog
820	6	4.4	631	20	AAU06899	Ethylene receptor	893	6	4.4	920	19	AAW82500	Human OGT protein.
821	6	4.4	635	22	AAU19571	Human diagnostic a	894	6	4.4	920	21	AAV77291	Streptomyces cinna
822	6	4.4	637	20	AAU25004	Melon MEERS protei	895	6	4.4	920	21	AAV77291	Ksq-Atq loading di
823	6	4.4	647	22	AAW79235	Human protein SEQ	896	6	4.4	931	20	AAV27357	Group B Streptococ
824	6	4.4	660	20	AAU28901	Human migration st	897	6	4.4	935	20	AAV31987	Alpha-ketoglutarat
825	6	4.4	660	22	AAU38921	C. trachomatis CT8	898	6	4.4	935	22	AAU00224	Succinate dehydrog
826	6	4.4	684	21	AAB58217	Lung cancer associ	899	6	4.4	952	22	ABG20628	Novel human diagno
827	6	4.4	698	22	AAG82647	S. epidermidis ope	900	6	4.4	956	12	AAR15784	B.thuringiensis to
828	6	4.4	699	22	ABG67414	Drosophila melanog	901	6	4.4	957	22	ABG64362	Drosophila melanog
829	6	4.4	707	22	ABG24674	Novel human diagno	902	6	4.4	970	22	AAW39217	Human polypeptide
830	6	4.4	710	22	ABG20363	Novel human diagno	903	6	4.4	976	22	AAW66581	Human SCP-1 mutein
831	6	4.4	715	22	AAW79737	Human protein SEQ	904	6	4.4	995	21	AAW03129	Polyprotein (pol)
832	6	4.4	720	20	AAU28914	Fibronectin protei	905	6	4.4	1005	22	AAU63132	Protonibacterium
833	6	4.4	722	22	AAH82125	Alpha-1,3-multi-br	906	6	4.4	1016	22	ABB68593	Drosophila melanog
834	6	4.4	725	22	ABB63435	Drosophila melanog	907	6	4.4	1023	22	ABW11436	D. discoideum ster
835	6	4.4	738	16	AAR69849	Ethylene response	908	6	4.4	1028	22	ABG11837	Novel human diagno
836	6	4.4	738	16	AAR69850	Ethylene response	909	6	4.4	1029	22	AAW39216	Human polypeptide
837	6	4.4	738	16	AAR69851	Ethylene response	910	6	4.4	1042	22	ABG66302	Drosophila melanog
838	6	4.4	738	16	AAR69852	Ethylene response	911	6	4.4	1059	22	ABB59330	Drosophila melanog
839	6	4.4	738	16	AAR69853	Ethylene response	912	6	4.4	1059	22	ABG67407	Drosophila melanog
840	6	4.4	738	19	AAW73121	A. thaliana ethyle	913	6	4.4	1059	22	ABG67408	Drosophila melanog
841	6	4.4	738	19	AAW73117	A. thaliana ethyle	914	6	4.4	1062	22	ABG18301	Novel human diagno
842	6	4.4	738	19	AAW73118	A. thaliana ethyle	915	6	4.4	1062	22	AAW41002	Human polypeptide
843	6	4.4	738	19	AAW73119	A. thaliana ethyle	916	6	4.4	1062	22	AAW41003	Human polypeptide
844	6	4.4	738	19	AAW73120	A. thaliana ethyle	917	6	4.4	1068	22	AAW79228	Human protein SEQ
845	6	4.4	740	20	AAU25005	Melon MEETRI prote	918	6	4.4	1069	22	AAW38650	Human polypeptide
846	6	4.4	747	22	AAE05340	Rat hypothetical 1	919	6	4.4	1069	22	AAW68892	Human RECAP polype
847	6	4.4	749	16	AAW70233	P. falciparum EBL-	920	6	4.4	1070	18	AAW17789	Green fluorescent
848	6	4.4	749	18	AAW22479	Plasmodium ebl-1.	921	6	4.4	1078	22	AAW39300	Human polypeptide
849	6	4.4	749	21	AAW77901	P. falciparum ebl-	922	6	4.4	1083	20	AAV25169	Human RSC ligase p
850	6	4.4	754	20	AAU07027	Breast cancer asso	923	6	4.4	1088	22	AAW80212	Human protein SEQ
851	6	4.4	775	22	ABG22389	Novel human diagno	924	6	4.4	1088	22	AAW41086	Human polypeptide
852	6	4.4	780	15	AAW62487	Truncated FLT svEG	925	6	4.4	1089	22	ABG20503	Novel human diagno
853	6	4.4	780	19	AAW47039	Soluble truncated	926	6	4.4	1100	12	AAR15783	B.thuringiensis to
854	6	4.4	780	20	AAW68008	Human soluble vasc	927	6	4.4	1106	22	ABG25523	Novel human diagno
855	6	4.4	782	20	AAW85703	Grand fir monoterp	928	6	4.4	1118	22	AAW40436	Human polypeptide
856	6	4.4	782	21	AAU09853	Grand fir E-alpha-	929	6	4.4	1119	22	ABG63999	Drosophila melanog
857	6	4.4	782	22	AAW82629	S. epidermidis ope	930	6	4.4	1137	22	ABG28828	Novel human diagno
858	6	4.4	782	22	AAW69373	Grand fir abietadi	931	6	4.4	1151	19	AAW82501	C. elegans Ogr pro
859	6	4.4	787	22	AAW79253	Human protein SEQ	932	6	4.4	1160	22	ABG28234	Novel human diagno
860	6	4.4	792	19	AAW41764	Human ribonucleoti	933	6	4.4	1166	20	AAU08643	S. aureus SdrE pro
861	6	4.4	795	21	AAW03138	Pol fragment 2 enc	934	6	4.4	1166	21	AAW25525	Pinus radiata cell
862	6	4.4	806	19	AAW75911	Helicobacter leucy	935	6	4.4	1173	22	ABG22275	Novel human diagno
863	6	4.4	806	22	AAU36029	Helicobacter pylor	936	6	4.4	1173	22	ABG224298	Novel human diagno
864	6	4.4	806	22	AAE00667	Human protein tyro	937	6	4.4	1181	22	ABG18357	Novel human diagno
865	6	4.4	806	22	AAU33290	Novel human secret	938	6	4.4	1190	22	ABG18357	Human protein SEQ
866	6	4.4	811	16	AAU72737	Plasmodium falcipa	939	6	4.4	1191	22	AAW80219	Human protein SEQ
867	6	4.4	817	20	AAU06562	Grand fir E-alpha-	940	6	4.4	1224	22	ABG64966	Drosophila melanog
868	6	4.4	817	20	AAU06566	Grand fir E-alpha-	941	6	4.4	1230	21	AAW16682	Bacteriophage Dp-1
869	6	4.4	817	20	AAU06567	E-alpha-bisabolene	942	6	4.4	1250	21	AAU91279	Group B Streptococ
870	6	4.4	832	22	ABW58973	Drosophila melanog	943	6	4.4	1258	21	AAV80120	Human Ship-2 prote
871	6	4.4	833	20	AAW94058	Murine MSH5 (mMSH5	944	6	4.4	1258	22	AAW98987	Human type 2 SH2-d
872	6	4.4	834	20	AAU06778	Amino acid sequenc	945	6	4.4	1273	21	AAW70751	Human tyrosine kin
873	6	4.4	834	20	AAW94057	Human MSH5 (hMSH5)	946	6	4.4	1283	22	ABG63594	Drosophila melanog
874	6	4.4	841	22	AAU34283	Staphylococcus aur	947	6	4.4	1283	22	ABG63599	Drosophila melanog
875	6	4.4	841	22	AAU37158	Staphylococcus aur	948	6	4.4	1311	21	AAV71001	Alternative versio
876	6	4.4	845	22	ABG14684	Novel human diagno	949	6	4.4	1316	21	AAW30505	A calcium-dependen
877	6	4.4	846	22	ABG25333	Novel human diagno	950	6	4.4	1325	22	ABG17665	A calcium-dependen
878	6	4.4	858	8	AAU70099	Sequence of elonga	951	6	4.4	1337	21	AAW30504	Amino acid sequenc
879	6	4.4	858	8	AAU70100	Sequence of varian	952	6	4.4	1338	22	AAW67446	Amino acid sequenc
880	6	4.4	858	22	AAW79209	Human protein SEQ	953	6	4.4	1338	22	AAW67625	Human FLT-1 protei
881	6	4.4	858	22	AAW80193	Human protein SEQ	954	6	4.4	1339	22	AAU97784	Drosophila melanog
882	6	4.4	861	22	AAW47601	CUL5. Unidentifie	955	6	4.4	1345	22	ABG63423	Staphylococcus aur
883	6	4.4	875	19	AAW48309	Pisum sativum ACCa	956	6	4.4	1349	22	AAU34402	Staphylococcus aur
884	6	4.4	877	20	AAU00938	M. prunae DNA poly	957	6	4.4	1349	22	AAU37544	Staphylococcus aur
885	6	4.4	882	22	ABW60194	Drosophila melanog	958	6	4.4	1386	17	AAW87008	Pyroococcus furiosu
886	6	4.4	903	17	AAW87007	Hyperthermostable	959	6	4.4	1398	18	AAW24124	Pyroococcus furiosu
887	6	4.4	912	16	AAW96969	Transferrin recept	960	6	4.4	1398	20	AAW94839	WO9856926 Seq ID 6

961 Novel human diango  
962 Drosophila melanog  
963 Rat phospholipase-  
964 Drosophila melanog  
965 Drosophila melanog  
966 Plasmodium falcipa  
967 The human ribosome  
968 Amino acid sequenc  
969 Novel protein kina  
970 Human kinase (PKIN  
971 Human laminin 2 ma  
972 Human laminin 8 po  
973 Human laminin beta  
974 P. falciparum live  
975 Human laminin B1 c  
976 Human laminin 2 be  
977 Human laminin 8 po  
978 Human laminin prot  
979 Human shear stress  
980 Human peripheral b  
981 Tylosone synthase  
982 Drosophila melanog  
983 Novel human secret  
984 Drosophila melanog  
985 Drosophila melanog  
986 A murine phosphati  
987 Cyclorella cryptic  
988 HP1V-3 JS isolate  
989 HP1V-3 FRhl cp45 v  
990 HP1V-3 Vero cp45 v  
991 Amino acid sequenc  
992 Novel human diango  
993 Human polypeptide  
994 Bacillus subtilis  
995 Human fibronectin  
996 Human fibronectin  
997 Human fibronectin  
998 Fibronectin protei  
999 Partial BRCA2 canc  
1000 Human polypeptide

## ALIGNMENTS

RESULT 1  
AAW92263  
ID AAW92263 standard; Protein; 135 AA.

XX AC AAW92263;

XX DT 08-JUN-1999 (first entry)

XX DE Human anti-angiogenic peptide 16K hPL Met-1Arl34.

XX KW Human; anti-angiogenic; prolactin; placental lactogen; hPL; angiogenesis;  
KW growth hormone; hGH; hGH-V; capillary endothelial cell proliferation;  
KW placental vascularisation; pregnancy; treatment; angiogenic disease;  
KW tumour; inhibitor; malignant; angiofibroma; arteriovenous malformation;  
KW arthritis; atherosclerotic plaques; corneal graft neovascularisation;  
KW wound healing; proliferative retinopathy; macular degeneration; trachoma;  
KW granulation; glaucoma; ocular; uveitis; fracture; Osler-Weber syndrome;  
KW psoriasis; fibroplasia; scleroderma; Kaposi's sarcoma; vascular adhesion;  
KW ulcer; leukaemia; reproductive disorder; contraceptive agent;  
KW gene therapy; pre-eclampsia; intrauterine growth retardation;  
KW placental dysfunction.

XX OS Homo sapiens.

XX PN WO9851323-A1.

XX PD 19-NOV-1998.

XX XX

PF 12-MAY-1998; 98WO-US09691.  
XX 13-MAY-1997; 97US-0046394.  
PR (REGC ) UNIV CALIFORNIA.  
PA Martial JA, Struman I, Taylor R, Weiner RI;  
XX WPI; 1999-045192/04.  
PI N-PSDB; AAX01703.

XX New anti-angiogenic peptides - comprise N-terminal fragments of  
DR human placental lactogen, human growth hormone, growth hormone  
DR variant or human prolactin

XX Claim 3; Page 47; 87pp; English.

XX This invention describes novel human anti-angiogenic peptides derived  
CC from 10 to 150 consecutive amino acids selected from the N-terminal end  
CC of human placental lactogen (hPL), human growth hormone (hGH), growth  
CC hormone variant (hGH-V), or human prolactin. Such peptides (i) inhibit  
CC capillary endothelial cell proliferation and organisation (ii) inhibit  
CC angiogenesis in chick chorioallantoic membrane and (iii) binds to at  
CC least one specific receptor which does not bind an intact full length  
CC hGH, hPL, prolactin or hGH-V. The invention also describes a method for  
CC diagnosing a probable abnormality of placental vascularisation during  
CC pregnancy. The peptides can be used for treating an angiogenic disease in  
CC a subject, for inhibiting tumour formation or growth in a patient or for  
CC modulating vascularisation of a patient's placenta. In particular, the  
CC peptides can be used for preventing or treating e.g. malignant tumours,  
CC angiofibroma, arteriovenous malformation, arthritic such as rheumatoid  
CC arthritis, atherosclerotic plaques, corneal graft neovascularisation,  
CC delayed wound healing, proliferative retinopathy such as diabetic  
CC retinopathy, macular degeneration, granulations such as those occurring  
CC in haemophilic joints, inappropriate vascularisation in wound healing  
CC such as hypertrophic scars or keloid scars, neovascular glaucoma, ocular  
CC tumour, uveitis, non-union fractures, Osler-Weber syndrome, psoriasis,  
CC pyogenic glaucoma, retrolental fibroplasia, scleroderma, solid tumours,  
CC Kaposi's sarcoma, trachoma, vascular adhesions, chronic varicose ulcers,  
CC leukaemia, and reproductive disorders such as follicular and luteal cysts  
CC and choriocarcinoma. They can also be used as contraceptive agents. DNA  
CC encoding the peptides can be used in gene therapy. The measurement of  
CC abnormal levels of N-terminal fragments of hGH, hGH-V, prolactin or hPL  
CC can be used in assays for impairment of vascular development associated  
CC with pre-eclampsia, intrauterine growth retardation, and placental  
CC dysfunction.

XX SQ Sequence 135 AA;

Query Match 100.0%; Score 135; DB 20; Length 135;  
Best Local Similarity 100.0%; Pred. No. 2.4e-126;  
Matches 135; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MVQTVPLSLFPHAMLOAHRAHOLAIDTVQEPPEEYIPKDQKYSFLHDSQTSFSDSIP 60

Db 1 mvqtvpvlslrfidhamlqahrahqlaidtyqefecytpkdkysflhdsqtsfstdsip 60

QY 61 TPSNMEETQOKSNLELRISLLESWLEPVRFLRSMFANNLVDTSDSDYHLLKDL 120

Db 61 tpsnmeetqoksnlelrlslleswlepvrlflrsmfannlvdytdsdddyhllkdl 120

QY 121 GIQTLMGRLEDGSPR 135

Db 121 giqtlmgrledgspr 135

RESULT 2

AAW931765

ID AAW931765 standard; Protein; 191 AA.

XX AC AAW931765;

XX XX

DT 06-DEC-1999 (first entry)  
 XX Human placental lactogen.  
 XX Placental lactogen; hPL; human; variant; protein engineering.  
 XX Homo sapiens.  
 OS  
 XX  
 XX  
 FH Key Location/Qualifiers  
 XX Misc-difference 2 /note= "optionally substituted by Pro in hPL  
 FT variant of Claim 24"  
 FT  
 FT Misc-difference 4 /note= "optionally substituted by Ile in hPL  
 FT variant of Claim 24, and by Ala in hPL  
 FT variant of Claim 25"  
 FT  
 FT Misc-difference 12 /note= "optionally substituted by Asn in hPL  
 FT variant of Claim 24"  
 FT  
 FT Misc-difference 16 /note= "optionally substituted by Arg in hPL  
 FT variant of Claim 24"  
 FT  
 FT Misc-difference 56 /note= "optionally substituted by Glu in hPL  
 FT variant of Claim 24, and by Ala in hPL  
 FT variant of Claim 25"  
 FT  
 FT Misc-difference 64 /note= "optionally substituted by Arg in hPL  
 FT variant of Claim 24, and by Ala in hPL  
 FT variant of Claim 25"  
 FT  
 FT Misc-difference 179 /note= "optionally substituted by Ile in hPL  
 FT variant of Claim 24, and by Ala in hPL  
 FT variant of Claim 25"  
 FT  
 XX US5955346-A.  
 XX  
 XX 21-SEP-1999.  
 XX  
 XX 07-JUN-1995; 95US-0476999.  
 XX  
 XX 02-FEB-1994; 94US-0190723.  
 XX 26-OCT-1989; 89US-0428066.  
 XX 27-APR-1992; 92US-0875204.  
 XX 13-OCT-1992; 92US-0960227.  
 XX 28-OCT-1988; 88US-0264611.  
 XX  
 XX (GETH ) GENENTECH INC.  
 XX  
 XX Cunnigham BC, Wells JA;  
 PI  
 XX WPI; 1999-560495/47.  
 DR  
 XX  
 XX Isolated nucleic acids encoding variants of human prolactin and  
 PT placental lactogen useful for identifying active domains within those  
 PT proteins -  
 XX  
 XX Claim 23; Fig 2; 86pp; English.  
 PS  
 XX  
 XX This is the amino acid sequence of human placental lactogen (hPL).  
 CC The invention provides a method for the systematic analysis of the  
 CC structure and function of polypeptides by identifying active domains  
 CC which influence the activity of the polypeptide with a target  
 CC substance, and a method for identifying the active amino acid  
 CC residues within the active domain of a polypeptide. It also  
 CC provides polypeptide variants comprising segment-substituted and  
 CC residue-substituted growth hormones, prolactins and placental  
 CC lactogens. Claimed variants of hPL have 1-4 amino acid  
 CC substitutions when compared to the wild-type sequence, selected  
 CC from Q2P, V4I, H12N, Q16R, D56E, M64R and M179I, or V4A, D56A,  
 CC M64A, M179A. These mutations inactivate the active domains and  
 CC binding sites of the protein. Identifying receptor binding sites  
 CC in hormones permits the rational design of receptor specific

CC variants. Nucleic acids encoding the variants, expression vectors  
 CC and host cells are also claimed.  
 XX  
 SQ Sequence 191 AA;  
 Query Match 58.5%; Score 79; DB 20; Length 191;  
 Best Local Similarity 100.0%; Pred. No. 1.5e-70;  
 Matches 79; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 QY 55 FSDSTPTSPNMEETQOKSNLELLRISLLIESWLEPVRFRLSMFANNLVDTSDSDYHL 114  
 Db 54 fdsdptspnmeetqoksnlellrslslleswlepvrfirlsmfannlvdytsddghl 113  
 QY 115 LKDLKEEGTQIMGRLEDS 133  
 Db 114 lkdlkeegitqlmrgledgs 132  
 RESULT 3  
 AAY78426  
 ID AAY78426 standard; Protein; 191 AA.  
 XX  
 AC AAY78426;  
 XX  
 DT 09-MAY-2000 (first entry)  
 XX  
 DE Human placental lactogen amino acid sequence.  
 XX  
 KW Human growth hormone; hGH; prolactin; placental lactogen;  
 KW modification; mutagenesis.  
 XX  
 OS Homo sapiens.  
 XX  
 PN US6013478-A.  
 XX  
 PD 11-JAN-2000.  
 XX  
 PF 24-JUN-1998; 98US-0104036.  
 XX  
 PR 26-OCT-1989; 89US-0428066.  
 PR 27-APR-1992; 92US-0875204.  
 PR 13-OCT-1992; 92US-0960227.  
 PR 02-FEB-1994; 94US-0190723.  
 PR 06-JUN-1995; 95US-0483039.  
 PR 30-JUN-1997; 97US-0903398.  
 PR 28-OCT-1988; 88US-0264611.  
 XX  
 PA (GETH ) GENENTECH INC.  
 XX  
 PI Wells JA, Cunnigham BC;  
 XX  
 DR WPI; 2000-159873/14.  
 XX  
 XX Recombinant production of variant polypeptides, e.g. growth hormone  
 PT variants with altered receptor specificity, using cells transformed  
 PT with DNA selected by scanning mutagenesis in at least one peptide  
 PT domain -  
 XX  
 XX Example 2; Fig 2; 83pp; English.  
 PS  
 XX  
 XX The present invention describes the production of a polypeptide variant  
 CC (1) comprising segment substituted and residue substituted growth  
 CC hormone, prolactin or placental lactogens. The method is particularly  
 CC used to produce variants of growth hormone (GH), prolactin or placental  
 CC lactogen, but may also be applied to receptors, interferons, and  
 CC colony-stimulating factors. A particular application is the production  
 CC of human GH variants with altered (decreased or increased) binding  
 CC interaction with the somatogenic receptor, i.e. compounds useful as  
 CC human GH (ant)agonists and which may have higher potency for stimulating  
 CC other human GH receptors, and as standards or tracers in immunoassays  
 CC for human GH. This method of DNA selection identifies the biologically  
 CC active residues in active domains, including those critical for

CC Interaction with different targets. The present sequence represents a  
 CC human placental lactogen amino acid sequence, which is used in the  
 CC exemplification of the present invention.  
 XX  
 SQ Sequence 191 AA;

Query Match 58.5%; Score 79; DB 21; Length 191;  
 Best Local Similarity 100.0%; Pred. No. 1.5e-70;  
 Matches 79; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 55 FSDSIPTPSNMEETQKSNLELLRISLLIESWLEPVRFLRSMFANNLYDYDSDSDYHL 114  
 |||||  
 Db 54 fdsdptpsnmeetqkqnlellrisllieswlepvrlfmsfannlvdytsdssdyhl 113  
 |||||  
 Qy 115 LKDLLEGIGIQLMGRLDGS 133  
 |||||  
 Db 114 lkdleegigtlmgrledgs 132  
 |||||

RESULT 4  
 AAW92262  
 ID AAW92262 standard; Protein; 192 AA.  
 AC AAW92262;  
 XX  
 DT 08-JUN-1999 (first entry)  
 XX  
 DE Human anti-angiogenic peptide hPL Met-1Phe191.  
 XX  
 KW Human; anti-angiogenic; prolactin; placental lactogen; hPL; angiogenesis;  
 KW growth hormone; hGH; hGH-V; capillary endothelial cell proliferation;  
 KW placental vascularisation; pregnancy; treatment; angiogenic disease;  
 KW tumour; inhibitor; malignant; angiofibroma; arteriovenous malformation;  
 KW arthritis; atherosclerotic plaques; corneal graft neovascularisation;  
 KW wound healing; proliferative retinopathy; macular degeneration; trachoma;  
 KW granulation; glaucoma; ocular; uveitis; fracture; Osler-Weber syndrome;  
 KW psoriasis; fibroplasia; scleroderma; Kaposi's sarcoma; vascular adhesion;  
 KW ulcer; leukaemia; reproductive disorder; contraceptive agent;  
 KW gene therapy; pre-eclampsia; intrauterine growth retardation;  
 KW placental dysfunction.  
 XX  
 OS Homo sapiens.  
 XX  
 PN WO9851323-A1.  
 XX  
 PD 19-NOV-1998.  
 XX  
 PF 12-MAY-1998; 98WO-US09691.  
 XX  
 PR 13-MAY-1997; 97US-0046394.  
 XX  
 PA (REGC ) UNIV CALIFORNIA.  
 XX  
 PI Martial JA, Struman I, Taylor R, Weiner RI;  
 XX  
 DR WPI; 1998-045192/04.  
 DR N-PSDB; AAX01702.  
 XX  
 PT New anti-angiogenic peptides - comprise N-terminal fragments of  
 PT human placental lactogen, human growth hormone, growth hormone  
 PT variant or human prolactin  
 XX  
 PS Example 3; Page 47; 87pp; English.  
 XX  
 CC This invention describes novel human anti-angiogenic peptides derived  
 CC from 10 to 150 consecutive amino acids selected from the N-terminal end  
 CC of human placental lactogen (hPL), human growth hormone (hGH), growth  
 CC hormone variant (hGH-V), or human prolactin. Such peptides (i) inhibit  
 CC capillary endothelial cell proliferation and organisation (ii) inhibit  
 CC angiogenesis in chick chorioallantoic membrane and (iii) binds to at  
 CC least one specific receptor which does not bind an intact full length  
 CC hGH, hPL, prolactin or hGH-V. The invention also describes a method for

CC diagnosing a probable abnormality of placental vascularisation during  
 CC pregnancy. The peptides can be used for treating an angiogenic disease in  
 CC a subject, for inhibiting tumour formation or growth in a patient or for  
 CC modulating vascularisation of a patient's placenta. In particular, the  
 CC peptides can be used for preventing or treating e.g. malignant tumours,  
 CC angiofibroma, arteriovenous malformation, arthritic such as rheumatoid  
 CC arthritis, atherosclerotic plaques, corneal graft neovascularisation,  
 CC delayed wound healing, proliferative retinopathy such as diabetic  
 CC retinopathy, macular degeneration, granulations in wound healing  
 CC in haemophilic joints, inappropriate vascularisation in wound healing  
 CC such as hypertrophic scars or keloid scars, neovascular glaucoma, ocular  
 CC tumour, uveitis, non-union fractures, Osler-Weber syndrome, psoriasis,  
 CC pyogenic glaucoma, retrolental fibroplasia, scleroderma, solid tumours,  
 CC Kaposi's sarcoma, trachoma, vascular adhesions, chronic varicose ulcers,  
 CC leukaemia, and reproductive disorders such as follicular and luteal cysts  
 CC and choriocarcinoma. They can also be used as contraceptive agents. DNA  
 CC encoding the peptides can be used in gene therapy. The measurement of  
 CC abnormal levels of N-terminal fragments of hGH, hGH-V, prolactin or hPL  
 CC can be used in assays for impairment of vascular development associated  
 CC with pre-eclampsia, intrauterine growth retardation, and placental  
 CC dysfunction.  
 XX  
 SQ Sequence 192 AA;

Query Match 58.5%; Score 79; DB 20; Length 192;  
 Best Local Similarity 100.0%; Pred. No. 1.5e-70;  
 Matches 79; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 55 FSDSIPTPSNMEETQKSNLELLRISLLIESWLEPVRFLRSMFANNLYDYDSDSDYHL 114  
 |||||  
 Db 55 fdsdptpsnmeetqkqnlellrisllieswlepvrlfmsfannlvdytsdssdyhl 114  
 |||||  
 Qy 115 LKDLLEGIGIQLMGRLDGS 133  
 |||||  
 Db 115 lkdleegigtlmgrledgs 133  
 |||||

RESULT 5  
 AAC004730  
 ID AAC004730 standard; Protein; 135 AA.  
 XX  
 AC AAC004730;  
 XX  
 DT 06-NOV-2001 (first entry)  
 XX  
 DE Human polypeptide SEQ ID NO 18622.  
 XX  
 KW Human; cytokine; cell proliferation; cell differentiation; gene therapy;  
 KW vaccine; peptide therapy; stem cell growth factor; haematopoiesis;  
 KW tissue growth factor; immunomodulatory; cancer; leukaemia;  
 KW nervous system disorders; arthritis; inflammation.  
 XX  
 OS Homo sapiens.  
 XX  
 PN WO200164835-A2.  
 XX  
 PD 07-SEP-2001.  
 XX  
 PF 26-FEB-2001; 2001WO-US04927.  
 XX  
 PR 28-FEB-2000; 2000US-0515126.  
 PR 18-MAY-2000; 2000US-0577409.  
 XX  
 PA (HYSE-) HYSEQ INC.  
 XX  
 PI Tang YT, Liu C, Drmanac RT;  
 XX  
 DR WPI: 2001-514838/56.  
 DR N-PSDB; AAI84661.  
 XX  
 PT Isolated nucleic acids and polypeptides, useful for preventing  
 PT diagnosing and treating e.g. leukaemia, inflammation and immune

disorders -

Claim 20; SEQ ID NO 18622; 1399pp + Sequence Listing; English.

The invention relates to human polynucleotides (AAI79941-AAI93841) and the encoded proteins (AAO0010-AAO13910) that exhibit activity elating to cytokine, cell proliferation or cell differentiation or which may induce production of other cytokines in other cell populations. The polynucleotides and polypeptides are useful in gene therapy, vaccines or peptide therapy. The polypeptides have various cytokine-like activities, e.g. stem cell growth factor activity, haematopoiesis regulating activity, tissue growth factor activity, immunomodulatory activity and activin/inhibin activity and may be useful in the diagnosis and/or treatment of cancer, leukaemia, nervous system disorders, arthritis and inflammation.

Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO at ftp.wipo.int/pub/published\_pct\_sequences.

Sequence 135 AA;

Query Match 54.1%; Score 73; DB 22; Length 135;  
Best Local Similarity 100.0%; Pred. No. 1e-64;  
Matches 73; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

55 FSDSIPTPSNMEETQKSNLELLRISLLLTESWLEPVRFLRSMFANNLVYDTSDDYHL 114  
|||||  
26 fdsdptsmeetqkksnellrislllieswlepvrflrsmfannlvdytsdsdyl 85  
|||||

115 LKDLGGIQTLMG 127  
|||||  
86 lkdlgegiqltmg 98  
|||||

RESULT 6  
AAO04735  
ID AAO04735 standard; Protein; 129 AA.  
XX AC AAO04735;  
XX DT 06-NOV-2001 (first entry)  
XX DE Human polypeptide SEQ ID NO 18627.  
XX KW Human; cytokine; cell proliferation; cell differentiation; gene therapy;  
KW vaccine; peptide therapy; stem cell growth factor; haematopoiesis;  
KW tissue growth factor; immunomodulatory; cancer; leukaemia;  
KW nervous system disorders; arthritis; inflammation.  
XX OS Homo sapiens.  
XX PN WO200164835-A2.  
XX PD 07-SEP-2001.  
XX PF 26-FEB-2001; 2001WO-US04927.  
XX PR 28-FEB-2000; 2000US-0515126.  
XX PR 18-MAY-2000; 2000US-0577409.  
XX PA (HYSE-) HYSEQ INC.  
XX PI Tang YT, Liu C, Drmanac RT;  
XX DR WPI; 2001-514838/56.  
XX DR N-PSDB; AAI84656.  
XX PT Isolated nucleic acids and polypeptides, useful for preventing  
PT diagnosing and treating e.g. leukaemia, inflammation and immune  
disorders -  
XX PS Claim 20; SEQ ID NO 18622; 1399pp + Sequence Listing; English.

disorders -

Claim 20; SEQ ID NO 18622; 1399pp + Sequence Listing; English.

The invention relates to human polynucleotides (AAI79941-AAI93841) and the encoded proteins (AAO0010-AAO13910) that exhibit activity elating to cytokine, cell proliferation or cell differentiation or which may induce production of other cytokines in other cell populations. The polynucleotides and polypeptides are useful in gene therapy, vaccines or peptide therapy. The polypeptides have various cytokine-like activities, e.g. stem cell growth factor activity, haematopoiesis regulating activity, tissue growth factor activity, immunomodulatory activity and activin/inhibin activity and may be useful in the diagnosis and/or treatment of cancer, leukaemia, nervous system disorders, arthritis and inflammation.

Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO at ftp.wipo.int/pub/published\_pct\_sequences.

Sequence 129 AA;

Query Match 51.9%; Score 70; DB 22; Length 129;  
Best Local Similarity 100.0%; Pred. No. 9.4e-62;  
Matches 70; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

64 NMEETQKSNLELLRISLLLTESWLEPVRFLRSMFANNLVYDTSDDYHLLKDLGGIQ 123  
|||||  
15 nmeetqkksnellrislllieswlepvrflrsmfannlvdytsdsddylkdlgegiq 74  
|||||

124 TLMGRLEDGS 133  
|||||  
75 tlmgrledgs 84  
|||||

RESULT 7  
AAO12412  
ID AAO12412 standard; Protein; 115 AA.  
XX AC AAO12412;  
XX DT 06-NOV-2001 (first entry)  
XX DE Human polypeptide SEQ ID NO 26304.  
XX KW Human; cytokine; cell proliferation; cell differentiation; gene therapy;  
KW vaccine; peptide therapy; stem cell growth factor; haematopoiesis;  
KW tissue growth factor; immunomodulatory; cancer; leukaemia;  
KW nervous system disorders; arthritis; inflammation.  
XX OS Homo sapiens.  
XX PN WO200164835-A2.  
XX PD 07-SEP-2001.  
XX PF 26-FEB-2001; 2001WO-US04927.  
XX PR 28-FEB-2000; 2000US-0515126.  
XX PR 18-MAY-2000; 2000US-0577409.  
XX PA (HYSE-) HYSEQ INC.  
XX PI Tang YT, Liu C, Drmanac RT;  
XX DR WPI; 2001-514838/56.  
XX DR N-PSDB; AAI92343.  
XX PT Isolated nucleic acids and polypeptides, useful for preventing  
PT diagnosing and treating e.g. leukaemia, inflammation and immune  
disorders -  
XX PS Claim 20; SEQ ID NO 26304; 1399pp + Sequence Listing; English.  
XX CC The invention relates to human polynucleotides (AAI79941-AAI93841) and  
CC the encoded proteins (AAO0010-AAO13910) that exhibit activity elating to

CC cytokine, cell proliferation or cell differentiation or which may induce  
 CC production of other cytokines in other cell populations. The  
 CC polynucleotides and polypeptides are useful in gene therapy, vaccines or  
 CC peptide therapy. The polypeptides have various cytokine-like activities,  
 CC e.g. stem cell growth factor activity, haematopoiesis regulating  
 CC activity, tissue growth factor activity, immunomodulatory activity and  
 CC activin/inhibin activity and may be useful in the diagnosis and/or  
 CC treatment of cancer, leukaemia, nervous system disorders, arthritis and  
 CC inflammation.  
 CC Note: The sequence data for this patent did not form part of the printed  
 CC specification, but was obtained in electronic format directly from WIPO  
 CC at ftp.wipo.int/pub/published\_pct\_sequences.

XX SQ Sequence 115 AA;

Query Match 38.5%; Score 52; DB 22; Length 115;  
 Best Local Similarity 100.0%; Pred. No. 6.6e-44;  
 Matches 52; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 Qy 2 VQTPLSLRFLDHAMLQAHRAHQLAIDTYQFEETYPKDKYSFLHDSQTSF 53  
 Db 28 vqtpvlsrlfdhamlqahrahqlaidtyqfeetyipkdkysflhdsqtsf 79

RESULT 8

AAU25914  
 ID AAM25914 standard; Protein; 145 AA.

XX AC AAM25914;

XX DT 16-OCT-2001 (first entry)

XX DE Human protein sequence SEQ ID NO:1429.

XX KW Human; cancer; ulcer; HIV infection; human immunodeficiency virus;  
 KW antiinflammatory; antirheumatic; antiarthritic; immunosuppressive;  
 KW antibacterial; endocrine; cardiant; central nervous system; virucide;  
 KW anti-HIV; fungicide; antimutagen; cardiovascular; antianaemic; anaemia;  
 KW antiaggregant; haemostatic; vulnery; antiulcer; osteopathic; eczema;  
 KW dermatological; antiatheric; antiasthmatic; antidiabetic; cytostatic;  
 KW neuroprotective; antidepressant; nootropic; antiparkinsonian; infection;  
 KW immunostimulant; gene therapy; antisenese therapy; vaccine; inflammation;  
 KW antianaphylactic; rheumatoid arthritis; septic shock; pancreatitis;  
 KW cardiac dysfunction; neuropathology; cardiac anaphylaxis; autoimmunity;  
 KW genetic disease; haematopoietic disorder; platelet disorder; asthma;  
 KW thrombocytopaenia; osteoporosis; severe combined immunodeficiency;  
 KW allergic rhinitis; diabetes; multiple sclerosis; depression;  
 KW Alzheimer's disease; Parkinson's disease; neurodegenerative disorder;  
 KW neurological disorder.

XX OS Homo sapiens.

XX PN WO200153455-A2.

XX PD 26-JUL-2001.

XX PF 22-DEC-2000; 2000WO-US35017.

XX PR 23-DEC-1999; 99US-0471275.

XX PR 21-JAN-2000; 2000US-0488725.

XX PR 25-APR-2000; 2000US-0552317.

XX PA (HYSE-) HYSEQ INC.

XX PI Tang YT, Liu C, Drmanac RT;

XX DR WPI; 2001-457603/49.

XX DR N-PSDB; AAH99855.

XX PT Isolated human polynucleotides encoding polypeptides, useful for the

XX treatment and diagnosis of e.g. cancer, ulcers and HIV infection -

PS

XX Claim 20; Page 289; 1217pp; English.

XX AAH99166 to AAH99904 encode the human proteins given in AAM25225 to  
 CC AAM25963. The proteins can have activities based on the tissues and  
 CC cells they are expressed in, such as: antiinflammatory; antirheumatic;  
 CC antiarthritic; immunosuppressive; antibacterial; endocrine; cardiant;  
 CC central nervous system; virucide; anti-HIV; fungicide; antimutagen;  
 CC cardiovascular; antianaemic; antiaggregant; haemostatic; vulnery;  
 CC antiulcer; osteopathic; dermatological; antiallergic; antiasthmatic;  
 CC antidiabetic; cytostatic; neuroprotective; antidepressant; nootropic;  
 CC antiparkinsonian; and immunostimulant. The proteins and polynucleotides  
 CC encoding them can be used in gene therapy, antisenese therapy and vaccine  
 CC production. The proteins and polynucleotides are useful for screening for  
 CC agonists or antagonists of a protein and for the treatment and diagnosis  
 CC of disorders associated with the activity of a protein e.g. inflammation,  
 CC rheumatoid arthritis, septic shock, pancreatitis, cardiac dysfunction,  
 CC neuropathology, cardiac anaphylaxis, viral, bacterial, HIV and fungal  
 CC infections, autoimmunity, genetic diseases, haematopoietic disorders,  
 CC anaemia, platelet disorders, thrombocytopaenia, wounds, burns, ulcers,  
 CC osteoporosis, severe combined immunodeficiency, eczema, allergic  
 CC rhinitis, asthma, diabetes, cancer, multiple sclerosis, depression,  
 CC Alzheimer's disease, Parkinson's disease, neurodegenerative and  
 CC neurological disorders.

XX SQ Sequence 145 AA;

Query Match 38.5%; Score 52; DB 22; Length 145;  
 Best Local Similarity 100.0%; Pred. No. 8e-44;  
 Matches 52; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 2 VQTPLSLRFLDHAMLQAHRAHQLAIDTYQFEETYPKDKYSFLHDSQTSF 53

Db 47 vqtpvlsrlfdhamlqahrahqlaidtyqfeetyipkdkysflhdsqtsf 98

RESULT 9

AAU21684

ID AAU21684 standard; Protein; 229 AA.

XX AC AAU21684;

XX DT 04-DEC-2001 (first entry)

XX DE Novel human neoplastic disease associated polypeptide #117.

XX KW Human; neoplastic disease associated polypeptide; cancer;  
 KW hyperproliferative disorder; neural disorder; immune system disorder;  
 KW muscular disorder; reproductive disorder; gastrointestinal disorder;  
 KW pulmonary disorder; cardiovascular disorder; renal disorder;  
 KW neuroprotective; cytostatic; anti inflammatory; vasotropic.

XX OS Homo sapiens.

XX PN WO200155163-A1.

XX PD 02-AUG-2001.

XX PF 17-JAN-2001; 2001WO-US01358.

XX PR 31-JAN-2000; 2000US-0179065.

XX PR 04-FEB-2000; 2000US-0180628.

XX PR 24-FEB-2000; 2000US-0184664.

XX PR 02-MAR-2000; 2000US-0186350.

XX PR 16-MAR-2000; 2000US-0189874.

XX PR 17-MAR-2000; 2000US-0190076.

XX PR 18-APR-2000; 2000US-0198123.

XX PR 19-MAY-2000; 2000US-0205515.

XX PR 07-JUN-2000; 2000US-0209467.

XX PR 28-JUN-2000; 2000US-0214886.

XX PR 30-JUN-2000; 2000US-0215135.

XX PR 07-JUL-2000; 2000US-0216647.

XX PR 07-JUL-2000; 2000US-0216880.



PR 11-JUL-2000; 2000US-02117487.  
 PR 11-JUL-2000; 2000US-02117496.  
 PR 14-JUL-2000; 2000US-0218290.  
 PR 26-JUL-2000; 2000US-0220963.  
 PR 26-JUL-2000; 2000US-0220964.  
 PR 14-AUG-2000; 2000US-0224518.  
 PR 14-AUG-2000; 2000US-0224519.  
 PR 14-AUG-2000; 2000US-0225213.  
 PR 14-AUG-2000; 2000US-0225214.  
 PR 14-AUG-2000; 2000US-0225266.  
 PR 14-AUG-2000; 2000US-0225267.  
 PR 14-AUG-2000; 2000US-0225268.  
 PR 14-AUG-2000; 2000US-0225270.  
 PR 14-AUG-2000; 2000US-0225447.  
 PR 14-AUG-2000; 2000US-0225757.  
 PR 14-AUG-2000; 2000US-0225758.  
 PR 14-AUG-2000; 2000US-0225759.  
 PR 18-AUG-2000; 2000US-0226279.  
 PR 22-AUG-2000; 2000US-0226681.  
 PR 22-AUG-2000; 2000US-0226686.  
 PR 22-AUG-2000; 2000US-0227182.  
 PR 23-AUG-2000; 2000US-0227009.  
 PR 30-AUG-2000; 2000US-0228924.  
 PR 01-SEP-2000; 2000US-0229287.  
 PR 01-SEP-2000; 2000US-0229343.  
 PR 01-SEP-2000; 2000US-0229344.  
 PR 01-SEP-2000; 2000US-0229345.  
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 PR 08-SEP-2000; 2000US-0232080.  
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 PR 12-SEP-2000; 2000US-0231968.  
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 PR 14-SEP-2000; 2000US-0232401.  
 PR 14-SEP-2000; 2000US-0233063.  
 PR 14-SEP-2000; 2000US-0233064.  
 PR 14-SEP-2000; 2000US-0233065.  
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 PR 21-SEP-2000; 2000US-0234274.  
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 PR 25-SEP-2000; 2000US-0234998.  
 PR 26-SEP-2000; 2000US-0235484.  
 PR 27-SEP-2000; 2000US-0235834.  
 PR 27-SEP-2000; 2000US-0235836.  
 PR 29-SEP-2000; 2000US-0236327.  
 PR 29-SEP-2000; 2000US-0236367.  
 PR 29-SEP-2000; 2000US-0236368.  
 PR 29-SEP-2000; 2000US-0236369.  
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 PR 02-OCT-2000; 2000US-0237039.  
 PR 02-OCT-2000; 2000US-0237040.  
 PR 13-OCT-2000; 2000US-0239935.  
 PR 13-OCT-2000; 2000US-0239937.  
 PR 20-OCT-2000; 2000US-0240960.  
 PR 20-OCT-2000; 2000US-0241221.  
 PR 20-OCT-2000; 2000US-0241785.  
 PR 20-OCT-2000; 2000US-0241786.  
 PR 20-OCT-2000; 2000US-0241787.  
 PR 20-OCT-2000; 2000US-0241808.  
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 PR 01-NOV-2000; 2000US-0244617.  
 PR 08-NOV-2000; 2000US-0246474.  
 PR 08-NOV-2000; 2000US-0246475.  
 PR 08-NOV-2000; 2000US-0246476.  
 PR 08-NOV-2000; 2000US-0246477.  
 PR 08-NOV-2000; 2000US-0246478.  
 PR 08-NOV-2000; 2000US-0246523.  
 PR 08-NOV-2000; 2000US-0246524.  
 PR 08-NOV-2000; 2000US-0246525.  
 PR 08-NOV-2000; 2000US-0246526.  
 PR 08-NOV-2000; 2000US-0246527.  
 PR 08-NOV-2000; 2000US-0246528.  
 PR 08-NOV-2000; 2000US-0246532.  
 PR 08-NOV-2000; 2000US-0246609.  
 PR 08-NOV-2000; 2000US-0246610.  
 PR 08-NOV-2000; 2000US-0246611.  
 PR 08-NOV-2000; 2000US-0246613.  
 PR 17-NOV-2000; 2000US-0249207.  
 PR 17-NOV-2000; 2000US-0249208.  
 PR 17-NOV-2000; 2000US-0249209.  
 PR 17-NOV-2000; 2000US-0249210.  
 PR 17-NOV-2000; 2000US-0249211.  
 PR 17-NOV-2000; 2000US-0249212.  
 PR 17-NOV-2000; 2000US-0249213.  
 PR 17-NOV-2000; 2000US-0249214.  
 PR 17-NOV-2000; 2000US-0249215.  
 PR 17-NOV-2000; 2000US-0249216.  
 PR 17-NOV-2000; 2000US-0249217.  
 PR 17-NOV-2000; 2000US-0249218.  
 PR 17-NOV-2000; 2000US-0249244.  
 PR 17-NOV-2000; 2000US-0249245.  
 PR 17-NOV-2000; 2000US-0249264.  
 PR 17-NOV-2000; 2000US-0249265.  
 PR 17-NOV-2000; 2000US-0249297.  
 PR 17-NOV-2000; 2000US-0249299.  
 PR 17-NOV-2000; 2000US-0249300.  
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 PR 05-DEC-2000; 2000US-0251988.  
 PR 05-DEC-2000; 2000US-0256719.  
 PR 06-DEC-2000; 2000US-0251479.  
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 PR 08-DEC-2000; 2000US-0251868.  
 PR 08-DEC-2000; 2000US-0251869.  
 PR 08-DEC-2000; 2000US-0251989.  
 PR 11-DEC-2000; 2000US-0251990.  
 PR 05-JAN-2001; 2000US-0254097.  
 PR 05-JAN-2001; 2000US-0259678.  
 XX  
 (HUMA-) HUMAN GENOME SCI INC.

Rosen CA, Barash SC, Ruben SM;

WPI; 2001-465558/50.

N-PSDB; AAS34883.

Novel polypeptides and polynucleotides useful as diagnostic reagents to diagnose diseases or disorders associated with aberrant expression or activity of polypeptides, and for treating cancers, rheumatoid arthritis -

Claim 11; SEQ ID No 411; 687pp; English.

The present invention relates to the isolation of novel human neoplastic disease associated polypeptides, and cDNA (AAS34767-AAS35050) and DNA sequences encoding for these polypeptides. The sequences of the invention are useful in the diagnosis, treatment, prevention and/or prognosis of disorders involving neoplastic disease such as hyperproliferative disorders (e.g. leukaemia, bone cancer, bladder cancer, brain stem glioma, adult liver cancer, childhood cerebellar astrocytoma, or Hodgkin's lymphoma). The sequences of the invention may

CC also be useful for treating other disorders such as neural disorders,  
CC immune system disorders, muscular disorders, reproductive disorders,  
CC gastrointestinal disorders, pulmonary disorders, cardiovascular disorders,  
CC and renal disorders. The polynucleotide sequences of the invention are  
CC also useful in gene therapy. AAU21568-AAU21851 represent the novel human  
CC neoplastic disease associated polypeptides of the invention.  
CC Note: The sequence data for this patent did not form part of the printed  
CC specification, but was obtained in electronic format directly from WIPO  
CC at ftp.wipo.int/pub/published\_pct\_sequences.  
XX  
SQ Sequence 229 AA;

Query Match 38.5%; Score 52; DB 22; Length 229;  
Best Local Similarity 100.0%; Pred. No. 1.2e-43;  
Matches 52; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 2 VQTPLSLRFLDHALQAHRAHQLAIDTYQEFEEYIPKDKYSLFHDQSFSF 53  
|||||  
Db 52 VQTPLSLRFLDHALQAHRAHQLAIDTYQEFEEYIPKDKYSLFHDQSFSF 103

RESULT 10  
AAO05545  
ID AAO05545 standard; Protein; 75 AA.

XX AC AAO05545;

XX DT 06-NOV-2001 (first entry)

XX DE Human polypeptide SEQ ID NO 19437.

XX Human; cytokine; cell proliferation; cell differentiation; gene therapy;  
KW vaccine; peptide therapy; stem cell growth factor; haematopoiesis;  
KW tissue growth factor; immunomodulatory; cancer; leukaemia;  
KW nervous system disorders; arthritis; inflammation.

XX OS Homo sapiens.

XX PN WO200164835-A2.

XX PD 07-SEP-2001.

XX PF 26-FEB-2001; 2001WO-US04927.

XX PR 28-FEB-2000; 2000US-0515126.

XX PR 18-MAY-2000; 2000US-0577409.

XX PA (HYSE-) HYSEQ INC.

XX PI Tang YT, Liu C, Drmanac RT;

XX WPI: 2001-514838/56.

XX DR N-PSDB; AAI85476.

XX Isolated nucleic acids and polypeptides, useful for preventing  
PT diagnosing and treating e.g. leukaemia, inflammation and immune  
PT disorders -

XX Claim 20; SEQ ID NO 19437; 1399pp + Sequence Listing; English.

XX The invention relates to human polynucleotides (AAI79941-AAI93841) and  
CC the encoded proteins (AAO00010-AAO13910) that exhibit activity elating to  
CC cytokine, cell proliferation or cell differentiation or which may induce  
CC production of other cytokines in other cell populations. The  
CC polynucleotides and polypeptides are useful in gene therapy, vaccines or  
CC peptide therapy. The polypeptides have various cytokine-like activities,  
CC e.g. stem cell growth factor activity, haematopoiesis regulating  
CC activity, tissue growth factor activity, immunomodulatory activity and  
CC activin/inhibin activity and may be useful in the diagnosis and/or  
CC treatment of cancer, leukaemia, nervous system disorders, arthritis and  
CC inflammation.  
CC Note: The sequence data for this patent did not form part of the printed

CC specification, but was obtained in electronic format directly from WIPO  
CC at ftp.wipo.int/pub/published\_pct\_sequences.  
XX  
SQ Sequence 75 AA;

Query Match 37.0%; Score 50; DB 22; Length 75;  
Best Local Similarity 100.0%; Pred. No. 4.5e-42;  
Matches 50; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 84 IESWLEPVRFLRSMFANNLVYDTSDDYHLLKDLKEEGIQTLMGRLDGS 133  
|||||  
Db 1 IESWLEPVRFLRSMFANNLVYDTSDDYHLLKDLKEEGIQTLMGRLDGS 50

RESULT 11  
AAO11018  
ID AAO11018 standard; Protein; 120 AA.

XX AC AAO11018;

XX DT 06-NOV-2001 (first entry)

XX DE Human polypeptide SEQ ID NO 24910.

XX Human; cytokine; cell proliferation; cell differentiation; gene therapy;  
KW vaccine; peptide therapy; stem cell growth factor; haematopoiesis;  
KW tissue growth factor; immunomodulatory; cancer; leukaemia;  
KW nervous system disorders; arthritis; inflammation.

XX OS Homo sapiens.

XX PN WO200164835-A2.

XX PD 07-SEP-2001.

XX PF 26-FEB-2001; 2001WO-US04927.

XX PR 28-FEB-2000; 2000US-0515126.

XX PR 18-MAY-2000; 2000US-0577409.

XX PA (HYSE-) HYSEQ INC.

XX PI Tang YT, Liu C, Drmanac RT;

XX WPI: 2001-514838/56.

XX DR N-PSDB; AAI90949.

XX Isolated nucleic acids and polypeptides, useful for preventing  
PT diagnosing and treating e.g. leukaemia, inflammation and immune  
PT disorders -

XX Claim 20; SEQ ID NO 24910; 1399pp + Sequence Listing; English.

XX The invention relates to human polynucleotides (AAI79941-AAI93841) and  
CC the encoded proteins (AAO00010-AAO13910) that exhibit activity elating to  
CC cytokine, cell proliferation or cell differentiation or which may induce  
CC production of other cytokines in other cell populations. The  
CC polynucleotides and polypeptides are useful in gene therapy, vaccines or  
CC peptide therapy. The polypeptides have various cytokine-like activities,  
CC e.g. stem cell growth factor activity, haematopoiesis regulating  
CC activity, tissue growth factor activity, immunomodulatory activity and  
CC activin/inhibin activity and may be useful in the diagnosis and/or  
CC treatment of cancer, leukaemia, nervous system disorders, arthritis and  
CC inflammation.  
CC Note: The sequence data for this patent did not form part of the printed  
CC specification, but was obtained in electronic format directly from WIPO  
CC at ftp.wipo.int/pub/published\_pct\_sequences.

XX Sequence 120 AA;

Query Match 34.1%; Score 46; DB 22; Length 120;

Best Local Similarity 100.0%; Pred. No. 6.3e-38;  
Matches 46; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 8 SRLFDHAMIQAHRALADITYQEFETYPKDKYSFLHDSQTSF 53  
|||||  
Db 38 srlfdhamiqahrahqlaidtyqefetyipkdkysflhdsqtsf 83

RESULT 12  
AAO03677  
ID AAO03677 standard; Protein; 131 AA.  
XX AAO03677;  
DT 06-NOV-2001 (first entry)  
XX Human polypeptide SEQ ID NO 17569.  
XX Human; cytokine; cell proliferation; cell differentiation; gene therapy;  
KW vaccine; peptide therapy; stem cell growth factor; haematopoiesis;  
KW tissue growth factor; immunomodulatory; cancer; leukaemia;  
KW nervous system disorders; arthritis; inflammation.  
XX Homo sapiens.  
XX WO200164835-A2.  
XX 07-SEP-2001.  
XX 26-FEB-2001; 2001WO-US04927.  
XX 28-FEB-2000; 2000US-0515126.  
XX 18-MAY-2000; 2000US-0577409.  
XX (HYSE-) HYSEQ INC.  
XX Tang YT, Liu C, Drmanac RT;  
XX WPI; 2001-514838/56.  
XX N-PSDB; AAI83608.  
XX Isolated nucleic acids and polypeptides, useful for preventing  
PT diagnosing and treating e.g. leukaemia, inflammation and immune  
PT disorders -  
XX Claim 20; SEQ ID NO 17569; 1399pp + Sequence Listing; English.  
XX The invention relates to human polynucleotides (AAI79941-AAI93841) and  
CC the encoded proteins (AAO00010-AAO13910) that exhibit activity elating to  
CC cytokine, cell proliferation or cell differentiation or which may induce  
CC production of other cytokines in other cell populations. The  
CC polynucleotides and polypeptides are useful in gene therapy, vaccines or  
CC peptide therapy. The polypeptides have various cytokine-like activities,  
CC e.g. stem cell growth factor activity, haematopoiesis regulating  
CC activity, tissue growth factor activity, immunomodulatory activity and  
CC activin/inhibin activity and may be useful in the diagnosis and/or  
CC treatment of cancer, leukaemia, nervous system disorders, arthritis and  
CC inflammation.  
CC Note: The sequence data for this patent did not form part of the printed  
CC specification, but was obtained in electronic format directly from WIPO  
CC at ftp.wipo.int/pub/published\_pct\_sequences.  
XX Sequence 131 AA;

Query Match 27.4%; Score 37; DB 22; Length 131;  
Best Local Similarity 100.0%; Pred. No. 6e-29;  
Matches 37; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 58 SIPTPSNMETQKSNLELRISLLIESWLEPVRFL 94  
|||||  
Db 20 siptpsmeetqkksnlellrislllieswlepvrf1 56

RESULT 13  
AAO11014  
ID AAO11014 standard; Protein; 151 AA.  
XX AAO11014;  
XX 06-NOV-2001 (first entry)  
XX Human polypeptide SEQ ID NO 24906.  
XX Human; cytokine; cell proliferation; cell differentiation; gene therapy;  
KW vaccine; peptide therapy; stem cell growth factor; haematopoiesis;  
KW tissue growth factor; immunomodulatory; cancer; leukaemia;  
KW nervous system disorders; arthritis; inflammation.  
XX Homo sapiens.  
XX WO200164835-A2.  
XX 07-SEP-2001.  
XX 26-FEB-2001; 2001WO-US04927.  
XX 28-FEB-2000; 2000US-0515126.  
XX 18-MAY-2000; 2000US-0577409.  
XX (HYSE-) HYSEQ INC.  
XX Tang YT, Liu C, Drmanac RT;  
XX WPI; 2001-514838/56.  
XX N-PSDB; AAI90945.  
XX Isolated nucleic acids and polypeptides, useful for preventing  
PT diagnosing and treating e.g. leukaemia, inflammation and immune  
PT disorders -  
XX Claim 20; SEQ ID NO 24906; 1399pp + Sequence Listing; English.  
XX The invention relates to human polynucleotides (AAI79941-AAI93841) and  
CC the encoded proteins (AAO00010-AAO13910) that exhibit activity elating to  
CC cytokine, cell proliferation or cell differentiation or which may induce  
CC production of other cytokines in other cell populations. The  
CC polynucleotides and polypeptides are useful in gene therapy, vaccines or  
CC peptide therapy. The polypeptides have various cytokine-like activities,  
CC e.g. stem cell growth factor activity, haematopoiesis regulating  
CC activity, tissue growth factor activity, immunomodulatory activity and  
CC activin/inhibin activity and may be useful in the diagnosis and/or  
CC treatment of cancer, leukaemia, nervous system disorders, arthritis and  
CC inflammation.  
CC Note: The sequence data for this patent did not form part of the printed  
CC specification, but was obtained in electronic format directly from WIPO  
CC at ftp.wipo.int/pub/published\_pct\_sequences.  
XX Sequence 151 AA;

Query Match 27.4%; Score 37; DB 22; Length 151;  
Best Local Similarity 100.0%; Pred. No. 6.7e-29;  
Matches 37; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 2 VQTPLSLRFLDAMIQAHRALADITYQEFETYP 38  
|||||  
Db 47 vqtplsrlfdhamiqahrahqlaidtyqefetyip 83

RESULT 14  
AAO04794  
ID AAO04794 standard; Protein; 87 AA.  
XX AAO04794;  
XX



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Result No.	Score	Query		Length	DB	ID	Description
		Match	%				
1	22	16.3	176	3	US-08-791-728-1		Sequence 1, Appli
2	22	16.3	176	3	US-08-791-728-2		Sequence 2, Appli
3	22	16.3	177	1	US-08-187-756C-6		Sequence 6, Appli
4	22	16.3	177	2	US-08-710-324A-6		Sequence 6, Appli
5	22	16.3	191	4	US-08-800-215C-16		Sequence 16, Appl
6	22	16.3	191	4	US-08-800-215C-18		Sequence 18, Appl
7	22	16.3	191	4	US-08-800-215C-20		Sequence 20, Appl
8	22	16.3	191	4	US-09-284-878-5		Sequence 5, Appli
9	22	16.3	191	4	US-09-465-481-1		Sequence 1, Appli
10	22	16.3	192	1	US-08-093-383-1		Sequence 1, Appli
11	22	16.3	194	2	US-08-383-621-4		Sequence 4, Appli
12	22	16.3	194	3	US-08-459-906-4		Sequence 4, Appli
13	22	16.3	198	1	US-08-187-756C-5		Sequence 5, Appli
14	22	16.3	198	2	US-08-710-324A-5		Sequence 5, Appli
15	22	16.3	217	1	US-08-187-756C-4		Sequence 4, Appli
16	22	16.3	217	1	US-08-469-486-51		Sequence 51, Appl
17	22	16.3	217	2	US-08-469-658-51		Sequence 51, Appl
18	22	16.3	217	2	US-08-710-324A-4		Sequence 4, Appli
19	22	16.3	217	3	US-08-589-028-10		Sequence 10, Appl
20	22	16.3	217	3	US-08-784-582-10		Sequence 10, Appl
21	22	16.3	217	4	US-08-785-271-10		Sequence 10, Appl
22	22	16.3	217	4	US-08-785-628-11		Sequence 11, Appl
23	22	16.3	217	4	US-09-284-878-1		Sequence 1, Appli
24	22	16.3	274	3	US-08-784-582-71		Sequence 71, Appl
25	22	16.3	360	3	US-08-784-582-73		Sequence 73, Appl
26	19	14.1	168	6	5424199-3		Patent No. 5424199
27	13	9.6	506	1	US-08-369-780-2		Sequence 2, Appli

101	6	4.4	155	4	US-08-714-524D-12	Sequence 12, Appl	174	6	4.4	1083	3	US-08-895-601-5	Sequence 5, Appli
102	6	4.4	178	3	US-09-000-630C-21	Sequence 21, Appl	175	6	4.4	1149	3	US-08-560-005-5	Sequence 5, Appli
103	6	4.4	178	3	US-09-000-630C-23	Sequence 23, Appl	176	6	4.4	1149	3	US-09-418-540-5	Sequence 5, Appli
104	6	4.4	178	3	US-08-862-730C-21	Sequence 21, Appl	177	6	4.4	1196	1	US-08-144-121-4	Sequence 4, Appli
105	6	4.4	178	3	US-08-862-730C-23	Sequence 23, Appl	178	6	4.4	1196	2	US-08-735-893-4	Sequence 4, Appli
106	6	4.4	178	4	US-09-417-455-9	Sequence 9, Appli	179	6	4.4	1311	1	US-08-340-011-5	Sequence 5, Appli
107	6	4.4	178	4	US-09-417-455-10	Sequence 10, Appl	180	6	4.4	1311	3	US-08-901-710-5	Sequence 5, Appli
108	6	4.4	178	4	US-09-348-942-9	Sequence 9, Appli	181	6	4.4	1338	3	US-08-750-141A-3	Sequence 3, Appli
109	6	4.4	178	4	US-09-348-942-10	Sequence 10, Appl	182	6	4.4	1398	1	US-08-750-532-9	Sequence 9, Appli
110	6	4.4	178	4	US-09-316-081-6	Sequence 6, Appli	183	6	4.4	1398	4	US-08-894-818B-8	Sequence 8, Appli
111	6	4.4	190	3	US-08-741-411-5	Sequence 5, Appli	184	6	4.4	1398	4	US-09-445-472-6	Sequence 6, Appli
112	6	4.4	197	1	US-08-188-582-24	Sequence 24, Appl	185	6	4.4	1786	4	US-08-973-462-8	Sequence 8, Appli
113	6	4.4	197	1	US-08-646-715-24	Sequence 24, Appl	186	6	4.4	1864	2	US-08-804-227C-3	Sequence 3, Appli
114	6	4.4	199	2	US-08-211-312-6	Sequence 6, Appli	187	6	4.4	2052	3	US-09-045-201A-2	Sequence 2, Appli
115	6	4.4	199	3	US-08-472-285-6	Sequence 6, Appli	188	6	4.4	2089	1	US-08-418-893D-23	Sequence 23, Appl
116	6	4.4	199	4	US-08-472-929-6	Sequence 6, Appli	189	6	4.4	2089	1	US-08-418-893D-24	Sequence 24, Appl
117	6	4.4	250	4	US-09-058-368-1	Sequence 1, Appli	190	6	4.4	2231	1	US-08-153-799-16	Sequence 16, Appl
118	6	4.4	359	1	US-08-503-133A-2	Sequence 2, Appli	191	6	4.4	2233	2	US-08-569-853-1	Sequence 1, Appli
119	6	4.4	359	2	US-08-576-775A-2	Sequence 2, Appli	192	6	4.4	2233	2	US-08-569-853-2	Sequence 2, Appli
120	6	4.4	359	2	US-08-972-498-2	Sequence 2, Appli	193	6	4.4	2233	3	US-08-987-439-1	Sequence 1, Appli
121	6	4.4	359	3	US-08-899-545-2	Sequence 2, Appli	194	6	4.4	2285	4	US-09-308-375-2	Sequence 2, Appli
122	6	4.4	390	3	US-08-961-564A-2	Sequence 2, Appli	195	6	4.4	2324	1	US-08-283-857-1	Sequence 1, Appli
123	6	4.4	407	2	US-08-776-585-3	Sequence 3, Appli	196	6	4.4	2324	5	PCT-US95-09819-1	Sequence 1, Appli
124	6	4.4	407	4	US-08-986-659B-10	Sequence 10, Appl	197	6	4.4	2327	6	5455158-1	Patent No. 5455158
125	6	4.4	411	2	US-08-741-134-6	Sequence 6, Appli	198	6	4.4	2329	3	US-08-755-587-16	Sequence 16, Appl
126	6	4.4	428	4	US-08-815-469-2	Sequence 5, Appli	199	6	4.4	2386	2	US-09-016-366A-12	Sequence 12, Appl
127	6	4.4	429	2	US-08-677-049-5	Sequence 5, Appli	200	6	4.4	2446	2	US-08-551-336-2	Sequence 2, Appli
128	6	4.4	504	4	US-08-868-373-6	Sequence 6, Appli	201	6	4.4	2446	5	PCT-US93-12687-2	Sequence 2, Appli
129	6	4.4	511	3	US-09-105-039A-2	Sequence 2, Appli	202	6	4.4	3418	2	US-08-639-501-2	Sequence 2, Appli
130	6	4.4	521	4	US-09-413-814-54	Sequence 54, Appl	203	6	4.4	3418	2	US-08-603-753D-4	Sequence 4, Appli
131	6	4.4	530	3	US-09-105-039A-4	Sequence 4, Appli	204	6	4.4	3418	3	US-09-044-946-2	Sequence 2, Appli
132	6	4.4	533	4	US-09-350-268-3	Sequence 3, Appli	205	6	4.4	3418	3	US-08-755-587-44	Sequence 44, Appl
133	6	4.4	613	2	US-08-484-101B-46	Sequence 46, Appl	206	6	4.4	3418	3	US-09-044-908-2	Sequence 2, Appli
134	6	4.4	613	2	US-08-484-101B-48	Sequence 48, Appl	207	6	4.4	3418	3	US-09-099-753-4	Sequence 4, Appli
135	6	4.4	613	4	US-08-714-524D-46	Sequence 46, Appl	208	6	4.4	3418	4	US-08-986-106-4	Sequence 4, Appli
136	6	4.4	613	4	US-08-714-524D-48	Sequence 48, Appl	209	6	4.4	15281	2	US-08-471-119A-2	Sequence 2, Appli
137	6	4.4	615	2	US-08-484-101B-38	Sequence 38, Appl	210	5	3.7	5	1	US-08-460-343B-17	Sequence 17, Appl
138	6	4.4	615	4	US-08-714-524D-38	Sequence 38, Appl	211	5	3.7	5	1	US-08-398-028B-17	Sequence 17, Appl
139	6	4.4	738	1	US-08-530-010-3	Sequence 3, Appli	212	5	3.7	5	2	US-08-504-265B-17	Sequence 17, Appl
140	6	4.4	738	1	US-08-530-010-5	Sequence 5, Appli	213	5	3.7	7	6	5470825-7	Patent No. 5470825
141	6	4.4	738	1	US-08-530-010-7	Sequence 7, Appli	214	5	3.7	8	1	US-08-571-985-18	Sequence 18, Appl
142	6	4.4	738	1	US-08-530-010-9	Sequence 9, Appli	215	5	3.7	8	2	US-09-116-766-18	Sequence 18, Appl
143	6	4.4	738	1	US-08-530-010-11	Sequence 11, Appl	216	5	3.7	10	1	US-08-094-851-4	Sequence 4, Appli
144	6	4.4	738	2	US-08-484-101B-3	Sequence 3, Appli	217	5	3.7	10	2	US-08-595-043A-73	Sequence 73, Appl
145	6	4.4	738	2	US-08-484-101B-5	Sequence 5, Appli	218	5	3.7	10	5	PCT-US94-08167-4	Sequence 4, Appli
146	6	4.4	738	2	US-08-484-101B-7	Sequence 7, Appli	219	5	3.7	11	1	US-08-139-05A-9	Sequence 9, Appli
147	6	4.4	738	2	US-08-484-101B-9	Sequence 9, Appli	220	5	3.7	11	2	US-08-468-819-13	Sequence 13, Appl
148	6	4.4	738	2	US-08-484-101B-11	Sequence 11, Appl	221	5	3.7	11	2	US-08-468-819-16	Sequence 16, Appl
149	6	4.4	738	4	US-08-714-524D-3	Sequence 3, Appli	222	5	3.7	11	6	5177060-10	Patent No. 5177060
150	6	4.4	738	4	US-08-714-524D-5	Sequence 5, Appli	223	5	3.7	13	1	US-08-388-267C-14	Sequence 14, Appl
151	6	4.4	738	4	US-08-714-524D-7	Sequence 7, Appli	224	5	3.7	13	4	US-09-277-720-14	Sequence 14, Appl
152	6	4.4	738	4	US-08-714-524D-11	Sequence 11, Appl	225	5	3.7	16	1	US-07-708-885B-4	Sequence 4, Appli
153	6	4.4	738	4	US-08-568-459A-6	Sequence 6, Appli	226	5	3.7	16	1	US-07-714-386-4	Sequence 4, Appli
154	6	4.4	749	2	US-08-487-826B-6	Sequence 6, Appli	227	5	3.7	16	1	US-07-708-888A-4	Sequence 4, Appli
155	6	4.4	749	2	US-08-487-826B-6	Sequence 6, Appli	228	5	3.7	16	2	US-08-455-079-8	Sequence 8, Appli
156	6	4.4	780	1	US-08-232-538-14	Sequence 14, Appl	229	5	3.7	18	2	US-08-497-599-26	Sequence 26, Appl
157	6	4.4	780	1	US-08-786-164-14	Sequence 14, Appl	230	5	3.7	18	2	US-08-455-079-21	Sequence 21, Appl
158	6	4.4	795	1	US-07-716-827C-5	Sequence 5, Appli	231	5	3.7	19	4	US-08-462-467B-39	Sequence 39, Appl
159	6	4.4	806	1	US-08-451-715A-6	Sequence 6, Appli	232	5	3.7	19	5	PCT-US93-08435-61	Sequence 61, Appl
160	6	4.4	811	1	US-08-136-743B-4	Sequence 4, Appli	233	5	3.7	20	2	US-08-483-636-6	Sequence 6, Appli
161	6	4.4	817	4	US-09-234-393-13	Sequence 13, Appl	234	5	3.7	20	2	US-08-483-632-6	Sequence 6, Appli
162	6	4.4	817	4	US-09-234-393-38	Sequence 38, Appl	235	5	3.7	20	3	US-09-040-216-49	Sequence 49, Appl
163	6	4.4	817	4	US-09-234-393-40	Sequence 40, Appl	236	5	3.7	20	1	PCT-US94-07659-10	Sequence 10, Appl
164	6	4.4	834	4	US-09-143-571-29	Sequence 29, Appl	237	5	3.7	21	1	US-08-094-851-7	Sequence 7, Appli
165	6	4.4	840	2	US-08-467-822-25	Sequence 25, Appl	238	5	3.7	21	5	PCT-US94-08167-7	Sequence 7, Appli
166	6	4.4	840	4	US-08-432-697-25	Sequence 25, Appl	239	5	3.7	22	1	US-08-132-767-50	Sequence 50, Appl
167	6	4.4	840	4	US-08-466-248-25	Sequence 25, Appl	240	5	3.7	22	4	US-09-354-231B-48	Sequence 48, Appl
168	6	4.4	877	2	US-08-907-166-8	Sequence 8, Appli	241	5	3.7	23	3	US-09-040-216-6	Sequence 6, Appli
169	6	4.4	890	4	US-09-342-648-10	Sequence 10, Appl	242	5	3.7	23	4	US-09-227-357-158	Sequence 158, App
170	6	4.4	903	1	US-08-750-532-1	Sequence 1, Appli	243	5	3.7	24	1	US-07-921-178A-14	Sequence 14, Appl
171	6	4.4	917	2	US-08-588-983-16	Sequence 16, Appl	244	5	3.7	24	2	US-09-047-026A-7	Sequence 7, Appli
172	6	4.4	917	2	US-08-588-976-16	Sequence 16, Appl	245	5	3.7	24	6	5424199-1	Patent No. 5424199
173	6	4.4	976	4	US-09-104-324B-4	Sequence 4, Appli	246	5	3.7	25	2	US-08-292-870-4	Sequence 4, Appli



247	5	3.7	25	4	US-09-227-357-624	Sequence 624, App	320	5	3.7	76	1	US-07-778-413E-22	Sequence 22, Appl
248	5	3.7	26	4	US-09-043-785-3	Sequence 3, Appli	321	5	3.7	76	1	US-08-340-102-22	Sequence 22, Appl
249	5	3.7	27	3	US-08-749-816-5	Sequence 5, Appli	322	5	3.7	76	1	US-08-845-256-1	Sequence 1, Appli
250	5	3.7	27	4	US-09-144-914-9	Sequence 9, Appli	323	5	3.7	76	4	US-09-208-210-1	Sequence 1, Appli
251	5	3.7	28	2	US-08-559-492-16	Sequence 16, Appl	324	5	3.7	76	4	US-08-936-165A-392	Sequence 392, App
252	5	3.7	29	1	US-08-207-169A-6	Sequence 6, Appli	325	5	3.7	77	1	US-08-330-163-7	Sequence 7, Appli
253	5	3.7	29	1	US-08-207-169A-9	Sequence 9, Appli	326	5	3.7	77	1	US-08-094-851-6	Sequence 6, Appli
254	5	3.7	29	1	US-08-393-985-33	Sequence 33, Appl	327	5	3.7	77	1	US-08-482-111-7	Sequence 7, Appli
255	5	3.7	29	1	US-08-261-660A-20	Sequence 20, Appl	328	5	3.7	77	5	US-08-436-420-29	Sequence 29, Appl
256	5	3.7	29	5	PCT-US94-04361-30	Sequence 30, Appl	329	5	3.7	77	5	PCT-US94-08167-6	Sequence 6, Appli
257	5	3.7	29	5	PCT-US94-06931-20	Sequence 20, Appl	330	5	3.7	78	1	US-08-094-851-8	Sequence 8, Appli
258	5	3.7	32	1	US-08-190-802A-184	Sequence 184, App	331	5	3.7	78	2	US-08-469-412A-10	Sequence 10, Appl
259	5	3.7	32	4	US-08-477-346-184	Sequence 184, App	332	5	3.7	78	4	US-09-021-715-10	Sequence 10, Appl
260	5	3.7	32	4	US-08-473-089-184	Sequence 184, App	333	5	3.7	78	4	US-09-130-339-4	Sequence 4, Appli
261	5	3.7	33	2	US-09-031-485-61	Sequence 61, Appl	334	5	3.7	78	5	PCT-US94-08167-8	Sequence 8, Appli
262	5	3.7	33	2	US-08-847-429A-61	Sequence 61, Appl	335	5	3.7	79	1	US-08-154-916-3	Sequence 3, Appli
263	5	3.7	33	3	US-09-065-474-61	Sequence 61, Appl	336	5	3.7	84	1	US-08-370-225-17	Sequence 17, Appl
264	5	3.7	33	3	US-08-476-376-10	Sequence 10, Appl	337	5	3.7	84	1	US-08-461-859-17	Sequence 17, Appl
265	5	3.7	37	1	US-08-428-248-3	Sequence 3, Appli	338	5	3.7	84	4	US-09-205-283-5	Sequence 5, Appli
266	5	3.7	38	1	US-08-176-500-48	Sequence 48, Appl	339	5	3.7	84	4	US-09-205-283-13	Sequence 13, Appl
267	5	3.7	38	1	US-08-471-052A-48	Sequence 48, Appl	340	5	3.7	84	5	PCT-US93-10069-17	Sequence 17, Appl
268	5	3.7	38	1	US-08-189-331-48	Sequence 48, Appl	341	5	3.7	86	4	US-09-448-806C-3	Sequence 3, Appli
269	5	3.7	38	2	US-08-470-720-12	Sequence 12, Appl	342	5	3.7	91	4	US-09-314-268-140	Sequence 140, App
270	5	3.7	38	2	US-08-471-939-48	Sequence 48, Appl	343	5	3.7	92	4	US-08-459-568-81	Sequence 81, Appl
271	5	3.7	38	2	US-08-471-800-48	Sequence 48, Appl	344	5	3.7	92	2	US-08-399-411-81	Sequence 81, Appl
272	5	3.7	38	2	US-08-471-068-48	Sequence 48, Appl	345	5	3.7	92	2	US-08-341-843B-7	Sequence 7, Appli
273	5	3.7	39	4	US-09-260-846-23	Sequence 23, Appl	346	5	3.7	92	2	US-08-341-843B-19	Sequence 19, Appl
274	5	3.7	40	1	US-08-188-228-18	Sequence 18, Appl	347	5	3.7	92	2	US-08-427-497E-12	Sequence 12, Appl
275	5	3.7	40	1	US-08-332-643-18	Sequence 18, Appl	348	5	3.7	92	2	US-08-427-497E-24	Sequence 24, Appl
276	5	3.7	40	1	US-08-332-638-18	Sequence 18, Appl	349	5	3.7	92	3	US-08-516-859A-81	Sequence 81, Appl
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278	5	3.7	40	4	US-08-981-189B-2	Sequence 2, Appli	351	5	3.7	96	3	US-09-036-113-2	Sequence 2, Appli
279	5	3.7	40	4	US-08-981-392-33	Sequence 33, Appl	352	5	3.7	98	2	US-08-493-638-6	Sequence 6, Appli
280	5	3.7	40	4	US-09-400-716-12	Sequence 12, Appl	353	5	3.7	98	2	US-08-918-727-3	Sequence 3, Appli
281	5	3.7	41	4	US-08-982-785A-7	Sequence 7, Appli	354	5	3.7	98	2	US-08-468-819-1	Sequence 1, Appli
282	5	3.7	41	6	5177060-8	Patent No. 5177060	355	5	3.7	98	3	US-09-205-680A-3	Sequence 3, Appli
283	5	3.7	41	6	5223424-15	Patent No. 5223424	356	5	3.7	98	3	US-09-048-889-11	Sequence 11, Appl
284	5	3.7	42	5	PCT-US94-05150-17	Sequence 17, Appl	357	5	3.7	98	4	US-08-679-493A-151	Sequence 151, App
285	5	3.7	43	4	US-09-015-030-7	Sequence 7, Appli	358	5	3.7	100	4	US-09-230-196-4	Sequence 4, Appli
286	5	3.7	44	2	US-08-252-870-2	Sequence 2, Appli	359	5	3.7	101	1	US-08-476-008-17	Sequence 17, Appl
287	5	3.7	44	2	US-08-403-853-4	Sequence 4, Appli	360	5	3.7	101	1	US-08-306-063-17	Sequence 17, Appl
288	5	3.7	44	4	US-08-905-223-274	Sequence 274, App	361	5	3.7	101	1	US-08-833-485-17	Sequence 17, Appl
289	5	3.7	45	1	US-08-056-200-105	Sequence 105, App	362	5	3.7	101	1	US-09-137-440-17	Sequence 17, Appl
290	5	3.7	45	2	US-08-800-644-105	Sequence 105, App	363	5	3.7	101	5	PCT-US91-06148A-17	Sequence 17, Appl
291	5	3.7	46	4	US-09-227-357-303	Sequence 303, App	364	5	3.7	102	1	US-08-335-583C-51	Sequence 51, Appl
292	5	3.7	48	2	US-08-743-200-8	Sequence 8, Appli	365	5	3.7	102	2	US-08-288-508C-13	Sequence 13, Appl
293	5	3.7	51	1	US-07-707-542E-6	Sequence 6, Appli	366	5	3.7	102	3	US-08-289-222E-22	Sequence 22, Appl
294	5	3.7	55	3	US-09-029-424-17	Sequence 17, Appl	367	5	3.7	102	4	US-09-054-526B-22	Sequence 22, Appl
295	5	3.7	57	1	US-08-094-851-9	Sequence 9, Appli	368	5	3.7	103	4	US-09-370-253-14	Sequence 14, Appl
296	5	3.7	57	5	PCT-US94-08167-9	Sequence 9, Appli	369	5	3.7	104	1	US-08-340-203A-9	Sequence 9, Appli
297	5	3.7	58	1	US-08-470-179-12	Sequence 12, Appl	370	5	3.7	104	2	US-08-727-688-32	Sequence 32, Appl
298	5	3.7	60	4	US-09-227-357-307	Sequence 307, App	371	5	3.7	104	3	US-08-452-427-9	Sequence 9, Appli
299	5	3.7	60	4	US-09-227-357-317	Sequence 317, App	372	5	3.7	104	3	US-09-085-407-9	Sequence 9, Appli
300	5	3.7	64	2	US-08-292-870-1	Sequence 1, Appli	373	5	3.7	107	2	US-08-553-541B-4	Sequence 4, Appli
301	5	3.7	67	3	US-09-065-474-162	Sequence 162, App	374	5	3.7	107	2	US-08-476-176B-4	Sequence 4, Appli
302	5	3.7	71	6	518642-2	Patent No. 518642	375	5	3.7	107	3	US-08-127-721A-4	Sequence 4, Appli
303	5	3.7	72	1	US-08-362-670B-13	Sequence 13, Appl	376	5	3.7	107	3	US-08-485-246A-4	Sequence 4, Appli
304	5	3.7	72	1	US-08-362-670B-15	Sequence 15, Appl	377	5	3.7	107	3	US-09-268-202-4	Sequence 4, Appli
305	5	3.7	72	3	US-08-333-576C-13	Sequence 13, Appl	378	5	3.7	108	2	US-08-825-782-1	Sequence 1, Appli
306	5	3.7	72	3	US-08-333-576C-15	Sequence 15, Appl	379	5	3.7	108	2	US-08-825-782-3	Sequence 3, Appli
307	5	3.7	72	4	US-08-808-324-13	Sequence 13, Appl	380	5	3.7	108	2	US-08-825-782-4	Sequence 4, Appli
308	5	3.7	72	4	US-08-808-324-15	Sequence 15, Appl	381	5	3.7	110	1	US-08-542-363-22	Sequence 22, Appl
309	5	3.7	72	5	PCT-US94-14030A-13	Sequence 13, Appl	382	5	3.7	110	4	US-09-100-089-22	Sequence 22, Appl
310	5	3.7	72	5	PCT-US94-14030A-15	Sequence 15, Appl	383	5	3.7	111	4	US-09-199-637A-413	Sequence 413, App
311	5	3.7	73	1	US-08-476-008A-15	Sequence 15, Appl	384	5	3.7	111	2	US-09-193-877-4	Sequence 4, Appli
312	5	3.7	73	1	US-08-306-063-15	Sequence 15, Appl	385	5	3.7	115	4	US-09-097-889-20	Sequence 20, Appl
313	5	3.7	73	1	US-08-833-485-15	Sequence 15, Appl	386	5	3.7	116	2	US-08-392-625-40	Sequence 40, Appl
314	5	3.7	73	1	US-08-137-440-15	Sequence 15, Appl	387	5	3.7	116	2	US-08-466-961A-40	Sequence 40, Appl
315	5	3.7	73	4	US-08-936-165A-285	Sequence 285, App	388	5	3.7	117	4	US-09-314-268-92	Sequence 92, Appl
316	5	3.7	73	5	PCT-US91-06148A-15	Sequence 15, Appl	389	5	3.7	119	1	US-08-581-529B-7	Sequence 7, Appli
317	5	3.7	73	6	5177197-53	Patent No. 5177197	390	5	3.7	119	3	US-08-455-559-13	Sequence 13, Appl
318	5	3.7	74	1	US-08-474-633A-105	Sequence 105, App	391	5	3.7	119	3	US-09-097-616-7	Sequence 7, Appli
319	5	3.7	74	4	US-09-142-565-4	Sequence 4, Appli	392	5	3.7	119	4	US-09-156-316-9	Sequence 9, Appli

393	5	3.7	119	4	US-09-145-060-13	Sequence 13, Appl	466	5	3.7	164	1	US-08-808-303-8	Sequence 8, Appli
394	5	3.7	119	5	PCT-US94-00657-13	Sequence 13, Appl	467	5	3.7	164	1	US-08-808-303-12	Sequence 12, Appl
395	5	3.7	119	5	PCT-US94-07762-7	Sequence 7, Appli	468	5	3.7	164	4	US-08-996-533-8	Sequence 8, Appli
396	5	3.7	120	1	US-08-362-670B-4	Sequence 4, Appli	469	5	3.7	164	4	US-08-996-533-12	Sequence 12, Appl
397	5	3.7	120	2	US-08-637-759B-269	Sequence 269, App	470	5	3.7	165	1	US-08-215-805A-82	Sequence 82, Appl
398	5	3.7	120	3	US-08-871-355A-269	Sequence 269, App	471	5	3.7	166	2	US-08-631-328-55	Sequence 55, Appl
399	5	3.7	120	3	US-08-333-576C-4	Sequence 4, Appli	472	5	3.7	166	4	US-09-339-913B-81	Sequence 81, Appl
400	5	3.7	120	4	US-08-808-324-4	Sequence 4, Appli	473	5	3.7	166	4	US-09-339-913B-86	Sequence 86, Appl
401	5	3.7	120	4	US-08-890-865A-13	Sequence 13, Appl	474	5	3.7	166	4	US-09-339-904A-81	Sequence 81, Appl
402	5	3.7	120	4	US-09-201-945-269	Sequence 269, App	475	5	3.7	166	4	US-09-339-904A-86	Sequence 86, Appl
403	5	3.7	120	5	PCT-US94-14030A-4	Sequence 4, Appli	476	5	3.7	166	4	US-08-769-062B-81	Sequence 81, Appl
404	5	3.7	122	1	US-07-956-700B-37	Sequence 37, Appl	477	5	3.7	166	4	US-08-769-062B-86	Sequence 86, Appl
405	5	3.7	122	1	US-08-476-537-37	Sequence 37, Appl	478	5	3.7	166	4	US-08-936-165A-512	Sequence 512, App
406	5	3.7	122	1	US-08-485-607-37	Sequence 37, Appl	479	5	3.7	166	4	US-09-344-002B-81	Sequence 81, Appl
407	5	3.7	122	2	US-08-598-873-58	Sequence 58, Appl	480	5	3.7	166	4	US-09-344-002B-86	Sequence 86, Appl
408	5	3.7	122	2	US-08-475-879-37	Sequence 37, Appl	481	5	3.7	166	5	PCT-US93-02869-8	Sequence 8, Appli
409	5	3.7	122	4	US-08-605-430-58	Sequence 58, Appl	482	5	3.7	167	2	US-08-993-228-8	Sequence 8, Appli
410	5	3.7	122	4	US-09-199-637A-5	Sequence 5, Appli	483	5	3.7	167	4	US-08-858-207A-353	Sequence 353, App
411	5	3.7	123	2	US-08-588-258B-1	Sequence 1, Appli	484	5	3.7	171	4	US-09-188-930-197	Sequence 197, App
412	5	3.7	123	3	US-08-460-503-1	Sequence 10, Appl	485	5	3.7	171	4	US-08-936-165A-307	Sequence 307, App
413	5	3.7	123	4	US-09-156-316-10	Sequence 10, Appl	486	5	3.7	173	2	US-08-943-915-32	Sequence 32, Appl
414	5	3.7	123	5	PCT-US96-08295-1	Sequence 1, Appli	487	5	3.7	174	1	US-08-261-825-2	Sequence 2, Appli
415	5	3.7	129	1	US-08-313-075A-52	Sequence 52, Appl	488	5	3.7	174	2	US-08-719-124-2	Sequence 2, Appli
416	5	3.7	130	1	US-08-246-403A-8	Sequence 8, Appli	489	5	3.7	174	5	PCT-US95-07748A-2	Sequence 2, Appli
417	5	3.7	130	4	US-08-246-403A-11	Sequence 11, Appl	490	5	3.7	177	3	US-09-000-630C-22	Sequence 22, Appl
418	5	3.7	130	4	US-09-205-283-4	Sequence 4, Appli	491	5	3.7	177	3	US-08-862-730C-22	Sequence 22, Appl
419	5	3.7	131	1	US-08-154-916-2	Sequence 2, Appli	492	5	3.7	177	4	US-09-417-455-11	Sequence 11, Appl
420	5	3.7	131	2	US-08-675-508-1	Sequence 1, Appli	493	5	3.7	177	4	US-09-348-942-11	Sequence 11, Appl
421	5	3.7	131	2	US-09-139-424-2	Sequence 2, Appli	494	5	3.7	178	1	US-08-689-916A-2	Sequence 2, Appli
422	5	3.7	131	4	US-08-746-397-2	Sequence 2, Appli	495	5	3.7	179	3	US-08-665-259-1	Sequence 1, Appli
423	5	3.7	131	4	US-09-203-939-5	Sequence 5, Appli	496	5	3.7	179	3	US-08-762-500-1	Sequence 1, Appli
424	5	3.7	131	4	US-09-251-835-5	Sequence 5, Appli	497	5	3.7	181	3	US-08-848-560-12	Sequence 12, Appl
425	5	3.7	131	4	US-09-318-503-5	Sequence 5, Appli	498	5	3.7	181	4	US-09-029-213B-22	Sequence 22, Appl
426	5	3.7	131	4	US-09-038-261A-5	Sequence 5, Appli	499	5	3.7	182	3	US-08-691-563C-90	Sequence 90, Appl
427	5	3.7	132	4	US-09-242-216-2	Sequence 2, Appli	500	5	3.7	183	4	US-08-961-083-178	Sequence 178, App
428	5	3.7	133	3	US-08-463-903-4	Sequence 4, Appli	501	5	3.7	184	1	US-08-033-857A-7	Sequence 7, Appli
429	5	3.7	133	4	US-07-935-695-4	Sequence 6, Appli	502	5	3.7	184	1	US-08-374-983A-7	Sequence 7, Appli
430	5	3.7	134	1	US-08-581-529B-6	Sequence 6, Appli	503	5	3.7	189	1	US-08-173-510B-89	Sequence 89, Appl
431	5	3.7	134	3	US-09-097-616-6	Sequence 6, Appli	504	5	3.7	189	1	US-08-026-758-1	Sequence 1, Appli
432	5	3.7	135	3	PCT-US94-07762-6	Sequence 6, Appli	505	5	3.7	189	1	US-08-026-758-8	Sequence 8, Appli
433	5	3.7	135	3	US-08-812-586-46	Sequence 46, Appl	506	5	3.7	189	1	US-08-026-758-14	Sequence 14, Appl
434	5	3.7	137	4	US-09-109-100-19	Sequence 19, Appl	507	5	3.7	189	1	US-08-026-758-15	Sequence 15, Appl
435	5	3.7	140	6	5164490-8	Patent No. 5164490	508	5	3.7	189	1	US-08-026-758-18	Sequence 18, Appl
436	5	3.7	141	2	US-08-483-636-10	Sequence 10, Appl	509	5	3.7	189	1	US-08-458-218-87	Sequence 87, Appl
437	5	3.7	141	2	US-08-483-636-12	Sequence 12, Appl	510	5	3.7	189	2	US-08-489-066A-3	Sequence 3, Appli
438	5	3.7	141	2	US-08-483-632-10	Sequence 10, Appl	511	5	3.7	189	2	US-08-450-497-89	Sequence 89, Appl
439	5	3.7	141	2	US-08-483-632-12	Sequence 12, Appl	512	5	3.7	189	3	US-08-489-072A-3	Sequence 3, Appli
440	5	3.7	141	2	US-08-690-011A-43	Sequence 43, Appl	513	5	3.7	189	4	US-09-206-935-13	Sequence 13, Appl
441	5	3.7	142	4	US-08-975-080-34	Sequence 34, Appl	514	5	3.7	189	4	US-09-206-935-17	Sequence 17, Appl
442	5	3.7	142	4	US-09-283-144-3	Sequence 3, Appli	515	5	3.7	189	4	US-08-489-071A-3	Sequence 3, Appli
443	5	3.7	147	3	US-08-946-329A-59	Sequence 59, Appl	516	5	3.7	189	4	US-09-206-936-13	Sequence 13, Appl
444	5	3.7	149	4	US-08-975-762-63	Sequence 63, Appl	517	5	3.7	189	4	US-09-206-936-17	Sequence 17, Appl
445	5	3.7	149	4	US-09-295-028-63	Sequence 63, Appl	518	5	3.7	192	4	US-09-303-120B-8	Sequence 8, Appli
446	5	3.7	149	4	US-09-106-582-63	Sequence 63, Appl	519	5	3.7	192	4	US-09-820-576-8	Sequence 8, Appli
447	5	3.7	150	2	US-08-867-676-3	Sequence 3, Appli	520	5	3.7	193	2	US-08-900-407-3	Sequence 3, Appli
448	5	3.7	150	4	US-09-049-672A-3	Sequence 3, Appli	521	5	3.7	194	1	US-08-118-469A-7	Sequence 7, Appli
449	5	3.7	153	4	US-09-228-986-103	Sequence 103, App	522	5	3.7	194	1	US-08-909-119-7	Sequence 7, Appli
450	5	3.7	154	2	US-08-330-394A-29	Sequence 29, Appl	523	5	3.7	194	3	US-08-968-563-35	Sequence 35, Appl
451	5	3.7	154	4	US-09-404-670-4	Sequence 4, Appli	524	5	3.7	194	3	US-08-822-264-4	Sequence 4, Appli
452	5	3.7	154	4	US-09-041-886-32	Sequence 32, Appl	525	5	3.7	194	4	US-08-969-683A-35	Sequence 35, Appl
453	5	3.7	156	2	US-08-330-394A-22	Sequence 22, Appl	526	5	3.7	195	2	US-07-752-101A-68	Sequence 68, Appl
454	5	3.7	156	4	US-09-228-986-87	Sequence 87, Appl	527	5	3.7	195	2	US-08-822-260-3	Sequence 3, Appli
455	5	3.7	158	3	US-08-946-329A-66	Sequence 66, Appl	528	5	3.7	197	1	US-08-186-811-4	Sequence 4, Appli
456	5	3.7	162	1	US-08-048-164A-2	Sequence 2, Appli	529	5	3.7	197	1	US-08-261-660A-2	Sequence 2, Appli
457	5	3.7	162	1	US-08-460-462-2	Sequence 2, Appli	530	5	3.7	197	1	US-08-261-660A-45	Sequence 45, Appl
458	5	3.7	162	1	US-08-460-457-2	Sequence 2, Appli	531	5	3.7	197	1	US-08-261-660A-51	Sequence 51, Appl
459	5	3.7	162	1	US-08-460-458-2	Sequence 2, Appli	532	5	3.7	197	1	US-08-274-303-4	Sequence 4, Appli
460	5	3.7	162	2	US-08-460-455-2	Sequence 2, Appli	533	5	3.7	197	1	US-08-377-391A-4	Sequence 4, Appli
461	5	3.7	162	4	US-08-330-394A-2	Sequence 2, Appli	534	5	3.7	197	2	US-08-215-089-2	Sequence 2, Appli
462	5	3.7	162	4	US-09-366-623-2	Sequence 2, Appli	535	5	3.7	197	2	US-08-779-400-4	Sequence 4, Appli
463	5	3.7	163	2	US-08-867-676-1	Sequence 1, Appli	536	5	3.7	197	4	PCT-US94-06931-2	Sequence 2, Appli
464	5	3.7	163	3	US-09-006-636-7	Sequence 7, Appli	537	5	3.7	197	5	PCT-US94-06931-2	Sequence 2, Appli
465	5	3.7	163	4	US-09-006-632-7	Sequence 7, Appli	538	5	3.7	197	5	PCT-US94-07834-4	Sequence 4, Appli

539	5	3.7	197	5	PCT-US95-03384-2	Sequence 2, Appli	612	5	3.7	253	5	PCT-US96-01314-53	Sequence 53, Appl
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541	5	3.7	198	1	US-08-261-660A-52	Sequence 52, Appl	614	5	3.7	258	4	US-08-336-708A-10	Sequence 10, Appl
542	5	3.7	198	1	US-08-261-660A-53	Sequence 53, Appl	615	5	3.7	260	1	US-09-193-877-3	Sequence 3, Appli
543	5	3.7	198	2	US-08-943-915-33	Sequence 33, Appl	616	5	3.7	260	2	US-09-193-877-6	Sequence 6, Appli
544	5	3.7	199	1	US-08-261-660A-46	Sequence 46, Appl	617	5	3.7	262	2	US-08-038-761A-1	Sequence 1, Appli
545	5	3.7	199	1	US-08-261-660A-48	Sequence 48, Appl	618	5	3.7	262	4	US-08-961-083-30	Sequence 30, Appl
546	5	3.7	199	2	US-08-900-407-4	Sequence 4, Appli	619	5	3.7	262	4	US-09-230-196-6	Sequence 6, Appli
547	5	3.7	200	4	US-08-952-796-15	Sequence 15, Appl	620	5	3.7	263	1	US-08-362-670B-32	Sequence 32, Appl
548	5	3.7	201	3	US-08-369-822C-4	Sequence 4, Appli	621	5	3.7	263	2	US-08-892-690-3	Sequence 3, Appli
549	5	3.7	201	3	US-08-779-764A-20	Sequence 20, Appl	622	5	3.7	263	3	US-08-333-576C-32	Sequence 32, Appl
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551	5	3.7	201	3	US-08-779-764A-22	Sequence 22, Appl	624	5	3.7	263	5	PCT-US94-14030A-32	Sequence 32, Appl
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553	5	3.7	201	3	US-08-434-831B-4	Sequence 4, Appli	626	5	3.7	264	3	US-08-924-570A-2	Sequence 2, Appli
554	5	3.7	202	4	US-09-199-637A-149	Sequence 149, App	627	5	3.7	265	4	US-09-354-129-6	Sequence 6, Appli
555	5	3.7	202	2	US-08-943-915-2	Sequence 2, Appli	628	5	3.7	265	4	US-09-813-817-4	Sequence 4, Appli
556	5	3.7	207	2	US-08-943-915-5	Sequence 5, Appli	629	5	3.7	266	4	US-08-936-165A-305	Sequence 305, App
557	5	3.7	208	1	US-08-109-391A-4	Sequence 4, Appli	630	5	3.7	267	1	US-07-959-946-3	Sequence 3, Appli
558	5	3.7	208	1	US-08-459-019A-4	Sequence 4, Appli	631	5	3.7	267	1	US-08-333-577-3	Sequence 3, Appli
559	5	3.7	208	2	US-08-460-428A-4	Sequence 4, Appli	632	5	3.7	267	4	US-08-454-928-10	Sequence 10, Appl
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561	5	3.7	209	2	US-08-645-193B-30	Sequence 30, Appl	634	5	3.7	267	5	PCT-US92-08634-3	Sequence 3, Appli
562	5	3.7	210	1	US-08-286-872-2	Sequence 2, Appli	635	5	3.7	268	2	US-07-857-224B-74	Sequence 74, Appl
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564	5	3.7	211	4	US-08-936-165A-329	Sequence 329, App	637	5	3.7	273	2	US-09-055-095-3	Sequence 3, Appli
565	5	3.7	214	1	US-08-318-492-4	Sequence 4, Appli	638	5	3.7	273	2	US-08-809-494A-6	Sequence 6, Appli
566	5	3.7	214	1	US-08-707-340-4	Sequence 4, Appli	639	5	3.7	273	4	US-09-352-302-6	Sequence 6, Appli
567	5	3.7	214	2	US-08-916-902A-3	Sequence 3, Appli	640	5	3.7	274	2	US-08-701-191A-33	Sequence 33, Appl
568	5	3.7	214	2	US-08-994-578-4	Sequence 4, Appli	641	5	3.7	274	2	US-07-857-224B-29	Sequence 29, Appl
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570	5	3.7	215	1	US-08-312-870-5	Sequence 5, Appli	643	5	3.7	275	1	US-07-611-528A-2	Sequence 2, Appli
571	5	3.7	215	2	US-08-935-396-10	Sequence 10, Appl	644	5	3.7	275	1	US-08-083-946-2	Sequence 2, Appli
572	5	3.7	219	1	US-08-152-485-2	Sequence 2, Appli	645	5	3.7	275	3	US-08-452-915-2	Sequence 2, Appli
573	5	3.7	219	1	US-08-463-089-2	Sequence 2, Appli	646	5	3.7	276	2	US-08-701-935-1	Sequence 1, Appli
574	5	3.7	219	1	US-08-461-360A-2	Sequence 2, Appli	647	5	3.7	276	3	US-09-134-591-1	Sequence 1, Appli
575	5	3.7	219	1	US-08-461-359-2	Sequence 2, Appli	648	5	3.7	277	2	US-08-868-288A-7	Sequence 7, Appli
576	5	3.7	219	5	PCT-US94-12904-2	Sequence 2, Appli	649	5	3.7	277	3	US-09-235-373-7	Sequence 7, Appli
577	5	3.7	222	1	US-08-336-257A-5	Sequence 5, Appli	650	5	3.7	277	3	US-09-388-993-7	Sequence 7, Appli
578	5	3.7	222	5	PCT-US91-09055-3	Sequence 3, Appli	651	5	3.7	278	1	US-08-414-926A-4	Sequence 4, Appli
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580	5	3.7	224	4	US-09-113-750A-7	Sequence 7, Appli	653	5	3.7	278	3	US-09-253-682-4	Sequence 4, Appli
581	5	3.7	225	2	US-08-738-462-2	Sequence 2, Appli	654	5	3.7	278	3	US-09-527-657-4	Sequence 4, Appli
582	5	3.7	225	5	PCT-US94-07587-2	Sequence 2, Appli	655	5	3.7	280	2	US-08-284-941-7	Sequence 7, Appli
583	5	3.7	226	4	US-09-299-378-2	Sequence 2, Appli	656	5	3.7	280	4	US-08-447-642-7	Sequence 7, Appli
584	5	3.7	229	2	US-08-286-819A-45	Sequence 45, Appl	657	5	3.7	280	4	US-09-362-473-8	Sequence 8, Appli
585	5	3.7	229	3	US-08-980-357-45	Sequence 45, Appl	658	5	3.7	280	4	US-09-236-503-7	Sequence 7, Appli
586	5	3.7	229	5	US-09-188-930-315	Sequence 315, App	659	5	3.7	280	5	PCT-US93-02147A-7	Sequence 7, Appli
587	5	3.7	229	5	PCT-US96-03916-13	Sequence 13, Appl	660	5	3.7	281	2	US-08-469-537A-52	Sequence 52, Appl
588	5	3.7	229	5	PCT-US96-03916-62	Sequence 62, Appl	661	5	3.7	281	4	US-09-434-774-6	Sequence 6, Appli
589	5	3.7	231	1	US-08-220-379B-7	Sequence 7, Appli	662	5	3.7	283	3	US-09-141-821-1	Sequence 1, Appli
590	5	3.7	231	1	US-08-243-545-2	Sequence 2, Appli	663	5	3.7	285	3	US-09-141-821-2	Sequence 2, Appli
591	5	3.7	231	2	US-08-993-962-2	Sequence 2, Appli	664	5	3.7	285	3	US-09-141-821-4	Sequence 4, Appli
592	5	3.7	231	3	US-08-986-485-7	Sequence 7, Appli	665	5	3.7	285	5	PCT-US95-04801-7	Sequence 7, Appli
593	5	3.7	231	4	US-08-974-380-2	Sequence 2, Appli	666	5	3.7	288	5	US-08-928-284-2	Sequence 2, Appli
594	5	3.7	231	4	US-09-160-841-2	Sequence 2, Appli	667	5	3.7	292	3	US-08-812-586-3	Sequence 3, Appli
595	5	3.7	231	5	PCT-US94-05365-2	Sequence 2, Appli	668	5	3.7	293	3	US-08-812-586-3	Sequence 3, Appli
596	5	3.7	231	5	PCT-US95-03866-6	Sequence 6, Appli	669	5	3.7	294	2	US-08-701-191A-20	Sequence 20, Appl
597	5	3.7	232	4	US-09-553-498-6	Sequence 6, Appli	670	5	3.7	297	2	US-08-481-956A-10	Sequence 10, Appl
598	5	3.7	233	4	US-09-188-930-139	Sequence 139, App	671	5	3.7	297	2	US-08-629-291A-10	Sequence 10, Appl
599	5	3.7	237	4	US-09-655-270A-19	Sequence 19, Appl	672	5	3.7	297	2	US-08-658-335B-10	Sequence 10, Appl
600	5	3.7	237	4	US-09-651-941-23	Sequence 23, Appl	673	5	3.7	298	2	US-08-061-636-3	Sequence 3, Appli
601	5	3.7	239	3	US-08-813-586-29	Sequence 29, Appl	674	5	3.7	298	3	US-08-874-347-19	Sequence 19, Appl
602	5	3.7	240	2	US-08-114-555A-8	Sequence 8, Appli	675	5	3.7	298	3	US-09-093-522-19	Sequence 19, Appl
603	5	3.7	240	3	US-08-559-397A-14	Sequence 14, Appl	676	5	3.7	298	5	PCT-US94-05288-3	Sequence 3, Appli
604	5	3.7	245	4	US-09-413-814-6	Sequence 14, Appl	677	5	3.7	301	5	PCT-US95-13975-72	Sequence 72, Appl
605	5	3.7	248	4	US-09-387-284-2	Sequence 2, Appli	678	5	3.7	303	4	US-08-961-083-202	Sequence 202, App
606	5	3.7	252	3	US-08-513-974B-52	Sequence 52, Appl	679	5	3.7	304	2	US-08-701-191A-30	Sequence 30, Appl
607	5	3.7	252	3	US-08-513-974B-360	Sequence 360, App	680	5	3.7	306	1	US-08-317-522A-7	Sequence 7, Appli
608	5	3.7	253	2	US-08-468-576B-15	Sequence 15, Appl	681	5	3.7	306	1	US-08-439-818A-7	Sequence 7, Appli
609	5	3.7	253	2	US-08-468-579B-15	Sequence 15, Appl	682	5	3.7	306	2	US-08-751-965-7	Sequence 7, Appli
610	5	3.7	253	3	US-08-468-577B-15	Sequence 15, Appl	683	5	3.7	306	2	US-08-738-975-7	Sequence 7, Appli
611	5	3.7	253	5	PCT-US96-01314-52	Sequence 52, Appl	684	5	3.7	306	2	US-08-728-626-7	Sequence 7, Appli

685	5	3.7	306	3	US-09-120-887-3	Sequence 3, Appl1	758	5	3.7	350	4	US-08-585-895-33	Sequence 33, Appl1
686	5	3.7	306	3	US-08-808-599A-7	Sequence 7, Appl1	759	5	3.7	351	2	US-08-868-288A-6	Sequence 6, Appl1
687	5	3.7	308	2	US-08-468-576B-16	Sequence 16, Appl1	760	5	3.7	351	3	US-09-235-373-6	Sequence 6, Appl1
688	5	3.7	308	2	US-08-468-577B-16	Sequence 16, Appl1	761	5	3.7	351	3	US-09-388-993-6	Sequence 4, Appl1
689	5	3.7	308	3	US-08-468-577B-16	Sequence 16, Appl1	762	5	3.7	351	4	US-09-282-305-4	Sequence 35, Appl1
690	5	3.7	310	2	US-08-469-537A-74	Sequence 74, Appl1	763	5	3.7	353	1	US-07-752-101A-35	Sequence 36, Appl1
691	5	3.7	311	2	US-08-568-459A-21	Sequence 21, Appl1	764	5	3.7	353	1	US-07-752-101A-36	Sequence 38, Appl1
692	5	3.7	311	2	US-08-487-826B-33	Sequence 33, Appl1	765	5	3.7	353	1	US-07-752-101A-38	Sequence 39, Appl1
693	5	3.7	312	4	US-09-188-930-142	Sequence 142, App	766	5	3.7	354	1	US-07-752-101A-39	Sequence 41, Appl1
694	5	3.7	312	4	US-08-460-900C-14	Sequence 14, Appl1	767	5	3.7	354	1	US-07-752-101A-41	Sequence 51, Appl1
695	5	3.7	312	4	US-09-142-565-2	Sequence 2, Appl1	768	5	3.7	354	1	US-07-752-101A-51	Sequence 5, Appl1
696	5	3.7	312	4	US-08-674-509B-14	Sequence 14, Appl1	769	5	3.7	354	4	US-08-915-795-5	Sequence 5, Appl1
697	5	3.7	312	4	US-08-954-698-14	Sequence 14, Appl1	770	5	3.7	355	2	US-08-865-203-5	Sequence 5, Appl1
698	5	3.7	312	2	US-08-356-060A-14	Sequence 14, Appl1	771	5	3.7	355	2	US-07-849-420-5	Sequence 5, Appl1
699	5	3.7	316	4	US-09-413-814-14	Sequence 14, Appl1	772	5	3.7	355	4	US-09-253-854-5	Sequence 5, Appl1
700	5	3.7	319	3	US-09-215-042-1	Sequence 1, Appl1	773	5	3.7	355	4	US-08-955-424-5	Sequence 5, Appl1
701	5	3.7	321	1	US-08-362-670B-26	Sequence 26, Appl1	774	5	3.7	357	4	US-09-718-841-4	Sequence 4, Appl1
702	5	3.7	321	3	US-08-333-576C-26	Sequence 26, Appl1	775	5	3.7	359	2	US-08-713-636-2	Sequence 2, Appl1
703	5	3.7	321	4	US-08-808-324-26	Sequence 26, Appl1	776	5	3.7	360	1	US-08-205-506A-2	Sequence 2, Appl1
704	5	3.7	321	5	PCT-US94-14030A-26	Sequence 26, Appl1	777	5	3.7	360	5	PCT-US94-02389-2	Sequence 2, Appl1
705	5	3.7	323	4	US-09-237-543-6	Sequence 6, Appl1	778	5	3.7	365	2	US-08-827-190-5	Sequence 5, Appl1
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707	5	3.7	324	1	US-08-746-682A-10	Sequence 10, Appl1	780	5	3.7	365	4	US-08-928-383B-2	Sequence 2, Appl1
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712	5	3.7	326	2	US-08-757-653-172	Sequence 172, App	785	5	3.7	365	4	US-09-004-838-133	Sequence 133, App
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ALIGNMENTS

RESULT 1  
US-08-791-728-1  
; Sequence 1, Application US/08791728  
; Patent No. 6013773  
; GENERAL INFORMATION:  
; APPLICANT: KOBAYASHI, Hideki  
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; APPLICANT: ITO, Teruo  
; APPLICANT: FUKUHARA, Akira  
; APPLICANT: SATO, Tsutomu  
; TITLE OF INVENTION: PHARMACEUTICAL PREPARATION CONTAINING  
; TITLE OF INVENTION: HUMAN GROWTH HORMONE  
; NUMBER OF SEQUENCES: 2  
; CORRESPONDENCE ADDRESS:  
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; CITY: Alexandria  
; STATE: Virginia  
; COUNTRY: United States  
; ZIP: 22313-1404  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: PatentIn Release #1.0, Version #1.30  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/791,728  
; FILING DATE: 31-JAN-1997  
; CLASSIFICATION: 424  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: JP 017342/1996  
; FILING DATE: 02-FEB-1996  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Teskin, Robin L.  
; REGISTRATION NUMBER: 35,030  
; REFERENCE/DOCKET NUMBER: 029430-331  
; TELEPHONE: (703) 836-6620  
; TELEFAX: (703) 836-2021  
; INFORMATION FOR SEQ ID NO: 1:  
; SEQUENCE CHARACTERISTICS:

; LENGTH: 176 amino acids  
; TYPE: amino acid  
; STRANDEDNESS: single  
; TOPOLOGY: linear  
; MOLECULE TYPE: protein  
US-08-791-728-1

Query Match 16.3%; Score 22; DB 3; Length 176;  
Best Local Similarity 100.0%; Pred. No. 2.2e-14;  
Matches 22; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 114 LKDLBEGIQTLMGRLEDGSPR 135  
|||||  
Db 98 LKDLBEGIQTLMGRLEDGSPR 119

RESULT 2  
US-08-791-728-2  
; Sequence 2, Application US/08791728  
; Patent No. 6013773  
; GENERAL INFORMATION:  
; APPLICANT: KOBAYASHI, Hideki  
; APPLICANT: AOKI, Mihoko  
; APPLICANT: UCHIDA, Hiroshi  
; APPLICANT: KUSUHARA, No. 6013773umi  
; APPLICANT: MIYAWA, Yukio  
; APPLICANT: ITO, Teruo  
; APPLICANT: FUKUHARA, Akira  
; APPLICANT: SATO, Tsutomu  
; TITLE OF INVENTION: PHARMACEUTICAL PREPARATION CONTAINING  
; TITLE OF INVENTION: HUMAN GROWTH HORMONE  
; NUMBER OF SEQUENCES: 2  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: BURNS, DOANE, SWECKER & MATHIS  
; STREET: P.O. Box 1404  
; CITY: Alexandria  
; STATE: Virginia  
; COUNTRY: United States  
; ZIP: 22313-1404  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: PatentIn Release #1.0, Version #1.30  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/791,728  
; FILING DATE: 31-JAN-1997  
; CLASSIFICATION: 424  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: JP 017342/1996  
; FILING DATE: 02-FEB-1996  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Teskin, Robin L.  
; REGISTRATION NUMBER: 35,030  
; REFERENCE/DOCKET NUMBER: 029430-331  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: (703) 836-6620  
; TELEFAX: (703) 836-2021  
; INFORMATION FOR SEQ ID NO: 2:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 176 amino acids  
; TYPE: amino acid  
; STRANDEDNESS: single  
; TOPOLOGY: linear  
; MOLECULE TYPE: protein  
US-08-791-728-2

Query Match 16.3%; Score 22; DB 3; Length 176;  
Best Local Similarity 100.0%; Pred. No. 2.2e-14;  
Matches 22; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 114 LKDLREGIOTLMGRLEDGSPR 135  
Db 98 LKDLREGIOTLMGRLEDGSPR 119

RESULT 3  
US-08-187-756C-6  
; Sequence 6, Application US/08187756C  
; Patent No. 5597709  
; GENERAL INFORMATION:  
; APPLICANT: ROSEN, ET AL.  
; TITLE OF INVENTION: Human Growth Hormone  
; NUMBER OF SEQUENCES: 7  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: CARELLA, BYRNE, BAIN, GILFILLAN,  
; STREET: 6 BECKER FARM ROAD  
; CITY: ROSELAND  
; STATE: NEW JERSEY  
; COUNTRY: USA  
; ZIP: 07068  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: 3 5 INCH DISKETTE  
; COMPUTER: IBM PS/2  
; OPERATING SYSTEM: MS-DOS  
; SOFTWARE: WORD PERFECT 5.1  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/187,756C  
; FILING DATE: January 27, 1994  
; CLASSIFICATION: 435  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER:  
; FILING DATE:  
; ATTORNEY/AGENT INFORMATION:  
; NAME: FERRARO, GREGORY D.  
; REGISTRATION NUMBER: 36,134  
; REFERENCE/DOCKET NUMBER: 325800-55  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: 201-994-1700  
; TELEFAX: 201-994-1744  
; INFORMATION FOR SEQ ID NO: 6:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 177 AMINO ACIDS  
; TYPE: AMINO ACID  
; STRANDEDNESS:  
; TOPOLOGY: LINEAR  
; MOLECULE TYPE: PROTEIN  
US-08-187-756C-6

Query Match 16.3%; Score 22; DB 1; Length 177;  
Best Local Similarity 100.0%; Pred. No. 2.3e-14;  
Matches 22; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 114 LKDLREGIOTLMGRLEDGSPR 135  
Db 99 LKDLREGIOTLMGRLEDGSPR 120

RESULT 4  
US-08-710-324A-6  
; Sequence 6, Application US/08710324A  
; Patent No. 5962411  
; GENERAL INFORMATION:  
; APPLICANT: ROSEN, et al.  
; TITLE OF INVENTION: Human Growth Factor  
; NUMBER OF SEQUENCES: 7  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Human Genome Sciences, Inc.  
; STREET: 9410 Key West Avenue  
; CITY: Rockville  
; STATE: MD  
; COUNTRY: USA

; ZIP: 20850  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: PatentIn Release #1.0, Version #1.30  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/710,324A  
; FILING DATE: 16-SEP-1996  
; CLASSIFICATION: 435  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 08/187,756  
; FILING DATE: 27-JAN-1994  
; ATTORNEY/AGENT INFORMATION:  
; NAME: BROOKES, A. Anders  
; REGISTRATION NUMBER: 36,373  
; REFERENCE/DOCKET NUMBER: PF104D1.SKB  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: 301-309-8504  
; TELEFAX: 301-309-8439  
; INFORMATION FOR SEQ ID NO: 6:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 177 AMINO ACIDS  
; TYPE: AMINO ACID  
; STRANDEDNESS:  
; TOPOLOGY: LINEAR  
; MOLECULE TYPE: PROTEIN  
US-08-710-324A-6

Query Match 16.3%; Score 22; DB 2; Length 177;  
Best Local Similarity 100.0%; Pred. No. 2.3e-14;  
Matches 22; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 114 LKDLREGIOTLMGRLEDGSPR 135  
Db 99 LKDLREGIOTLMGRLEDGSPR 120

RESULT 5  
US-08-800-215C-16  
; Sequence 16, Application US/08800215C  
; Patent No. 6238915  
; GENERAL INFORMATION:  
; APPLICANT: CHIHARA, Kazuo  
; TITLE OF INVENTION: MUTANT HUMAN GROWTH HORMONES AND THEIR  
; TITLE OF INVENTION: USES  
; NUMBER OF SEQUENCES: 22  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: JACOBSON, PRICE, HOLMAN & STERN  
; STREET: The Jenifer Building, 400 Seventh St. N.W.  
; CITY: Washington  
; STATE: DC  
; COUNTRY: USA  
; ZIP: 20004  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: PatentIn Release #1.0, Version #1.30  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/800,215C  
; FILING DATE: 12-FEB-1997  
; CLASSIFICATION: 536  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: JP JP/50940/96  
; FILING DATE: 18-JUN-1996  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: JP JP/178643/96  
; FILING DATE: 18-JUN-1996  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Player, William E.  
; REGISTRATION NUMBER: 31,409

; REFERENCE/DOCKET NUMBER: 10890/P60840US0  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: 202-638-6666  
; TELEFAX: 202-393-5350  
; INFORMATION FOR SEQ ID NO: 16:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 191 amino acids  
; TYPE: amino acid  
; TOPOLOGY: linear  
; MOLECULE TYPE: protein  
US-08-800-215C-16

Query Match 16.3%; Score 22; DB 4; Length 191;  
Best Local Similarity 100.0%; Pred. No. 2.4e-14;  
Matches 22; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 114 LKDLLEGIGTLMGRLEDGSPR 135  
|||||  
DB 113 LKDLLEGIGTLMGRLEDGSPR 134

## RESULT 6

US-08-800-215C-18  
; Sequence 18, Application US/08800215C  
; Patent No. 6238915  
; GENERAL INFORMATION:

; APPLICANT: CHIHARA, Kazuo  
; TITLE OF INVENTION: MUTANT HUMAN GROWTH HORMONES AND THEIR  
; TITLE OF INVENTION: USES  
; NUMBER OF SEQUENCES: 22  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: JACOBSON, PRICE, HOLMAN & STERN  
; STREET: The Jenifer Building, 400 Seventh St. N.W.  
; CITY: Washington  
; STATE: DC  
; COUNTRY: USA  
; ZIP: 20004

; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: Patent In Release #1.0, Version #1.30  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/800,215C  
; FILING DATE: 12-FEB-1997  
; CLASSIFICATION: 536  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: JP JP/50940/96  
; FILING DATE: 18-JUN-1996

; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: JP JP/178643/96  
; FILING DATE: 18-JUN-1996  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Player, William E.  
; REGISTRATION NUMBER: 31,409  
; REFERENCE/DOCKET NUMBER: 10890/P60840US0  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: 202-638-6666  
; TELEFAX: 202-393-5350  
; INFORMATION FOR SEQ ID NO: 18:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 191 amino acids  
; TYPE: amino acid  
; TOPOLOGY: linear  
; MOLECULE TYPE: protein  
US-08-800-215C-18

Query Match 16.3%; Score 22; DB 4; Length 191;  
Best Local Similarity 100.0%; Pred. No. 2.4e-14;  
Matches 22; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 114 LKDLLEGIGTLMGRLEDGSPR 135  
|||||  
DB 113 LKDLLEGIGTLMGRLEDGSPR 134

## RESULT 7

US-08-800-215C-20  
; Sequence 20, Application US/08800215C  
; Patent No. 6238915  
; GENERAL INFORMATION:

; APPLICANT: CHIHARA, Kazuo  
; TITLE OF INVENTION: MUTANT HUMAN GROWTH HORMONES AND THEIR  
; TITLE OF INVENTION: USES  
; NUMBER OF SEQUENCES: 22  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: JACOBSON, PRICE, HOLMAN & STERN  
; STREET: The Jenifer Building, 400 Seventh St. N.W.  
; CITY: Washington  
; STATE: DC  
; COUNTRY: USA  
; ZIP: 20004

; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: Patent In Release #1.0, Version #1.30  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/800,215C  
; FILING DATE: 12-FEB-1997  
; CLASSIFICATION: 536  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: JP JP/50940/96  
; FILING DATE: 18-JUN-1996

; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: JP JP/178643/96  
; FILING DATE: 18-JUN-1996  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Player, William E.  
; REGISTRATION NUMBER: 31,409  
; REFERENCE/DOCKET NUMBER: 10890/P60840US0  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: 202-638-6666  
; TELEFAX: 202-393-5350

; INFORMATION FOR SEQ ID NO: 20:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 191 amino acids  
; TYPE: amino acid  
; TOPOLOGY: linear  
; MOLECULE TYPE: protein  
US-08-800-215C-20

Query Match 16.3%; Score 22; DB 4; Length 191;  
Best Local Similarity 100.0%; Pred. No. 2.4e-14;  
Matches 22; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 114 LKDLLEGIGTLMGRLEDGSPR 135  
|||||  
DB 113 LKDLLEGIGTLMGRLEDGSPR 134

## RESULT 8

US-09-284-878-5  
; Sequence 5, Application US/09284878  
; Patent No. 6342375  
; GENERAL INFORMATION:

; APPLICANT: Olazaran, Martha Guerrero  
; APPLICANT: Saldana, Hugo Barrera  
; APPLICANT: Salvado, Jose Maria Viader  
; TITLE OF INVENTION: Genetically Modified Methylotrophic P. pastoris Yeast for the  
; TITLE OF INVENTION: Production and Secretion of the Human Growth Hormone  
; FILE REFERENCE: 1829.0010000  
; CURRENT APPLICATION NUMBER: US/09/284,878

Query Match 16.3%; Score 22; DB 4; Length 191;  
Best Local Similarity 100.0%; Pred. No. 2.4e-14;  
Matches 22; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 114 LKDLLEGIGTLMGRLEDGSPR 135  
|||||  
DB 113 LKDLLEGIGTLMGRLEDGSPR 134

## RESULT 8

US-09-284-878-5  
; Sequence 5, Application US/09284878  
; Patent No. 6342375  
; GENERAL INFORMATION:

; APPLICANT: Olazaran, Martha Guerrero  
; APPLICANT: Saldana, Hugo Barrera  
; APPLICANT: Salvado, Jose Maria Viader  
; TITLE OF INVENTION: Genetically Modified Methylotrophic P. pastoris Yeast for the  
; TITLE OF INVENTION: Production and Secretion of the Human Growth Hormone  
; FILE REFERENCE: 1829.0010000  
; CURRENT APPLICATION NUMBER: US/09/284,878



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; APPLICATION NUMBER: US 07/766,142
; FILING DATE: 25-SEP-1991
; ATTORNEY/AGENT INFORMATION:
; NAME: Tsevdos, Estelle J.
; REGISTRATION NUMBER: 31,145
; REFERENCE/DOCKET NUMBER: 31,278-01
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 203-321-2756
; TELEFAX: 203-321-2971
; TELEX: 203-710-474-4059
; INFORMATION FOR SEQ ID NO: 4:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 194 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
; MOLECULE TYPE: protein
; US-08-383-621-4

Query Match 16.3%; Score 22; DB 2; Length 194;
Best Local Similarity 100.0%; Pred. No. 2.4e-14;
Matches 22; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 114 LKDLREGIQTLMGRLEDGSPR 135
Db 116 LKDLREGIQTLMGRLEDGSPR 137

RESULT 12
US-08-459-906-4
; Sequence 4, Application US/08459906
; Patent No. 6010999
; GENERAL INFORMATION:
; APPLICANT: Daley, Michael J.
; APPLICANT: Buckwalter, Brian L.
; APPLICANT: Cadv, Susan M.
; APPLICANT: Shieh, Hong-Ming
; APPLICANT: Bohlen, Peter
; APPLICANT: Seddon, Andrew P.
; TITLE OF INVENTION: Stabilization of Somatotropins and Other
; TITLE OF INVENTION: Proteins by Modification of Cysteine Residues
; NUMBER OF SEQUENCES: 11
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: American Cyanamid Company
; STREET: One Cyanamid Plaza
; CITY: Wayne
; STATE: New Jersey
; COUNTRY: U.S.A.
; ZIP: 07470-8426
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patentin Release #1.0, Version #1.25
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/459,906
; FILING DATE: 02-JUN-1995
; CLASSIFICATION: 514
; ATTORNEY/AGENT INFORMATION:
; NAME: Webster, Darryl L.
; REGISTRATION NUMBER: 34,276
; REFERENCE/DOCKET NUMBER: 31,278-03
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 201-831-3247
; TELEFAX: 201-831-3305
; INFORMATION FOR SEQ ID NO: 4:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 194 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
; MOLECULE TYPE: protein
; US-08-459-906-4
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Query Match 16.3%; Score 22; DB 3; Length 194;
Best Local Similarity 100.0%; Pred. No. 2.4e-14;
Matches 22; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 114 LKDLREGIQTLMGRLEDGSPR 135
Db 116 LKDLREGIQTLMGRLEDGSPR 137

RESULT 13
US-08-187-756C-5
; Sequence 5, Application US/08187756C
; Patent No. 5597709
; GENERAL INFORMATION:
; APPLICANT: ROSEN, ET AL.
; TITLE OF INVENTION: Human Growth Hormone
; NUMBER OF SEQUENCES: 7
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: CARELLA, BYRNE, BAIN, GILFILLAN,
; ADDRESSEE: CECCHI, STEWART & OLSTEIN
; STREET: 6 BECKER FARM ROAD
; CITY: ROSELAND
; STATE: NEW JERSEY
; COUNTRY: USA
; ZIP: 07068
; COMPUTER READABLE FORM:
; MEDIUM TYPE: 3.5 INCH DISKETTE
; COMPUTER: IBM PS/2
; OPERATING SYSTEM: MS-DOS
; SOFTWARE: WORD PERFECT 5.1
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/187,756C
; FILING DATE: January 27, 1994
; CLASSIFICATION: 435
; PRIOR APPLICATION NUMBER:
; FILING DATE:
; ATTORNEY/AGENT INFORMATION:
; NAME: FERRARO, GREGORY D.
; REGISTRATION NUMBER: 36,134
; REFERENCE/DOCKET NUMBER: 325800-55
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 201-994-1700
; TELEFAX: 201-994-1744
; INFORMATION FOR SEQ ID NO: 5:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 198 AMINO ACIDS
; TYPE: AMINO ACID
; STRANDEDNESS:
; TOPOLOGY: LINEAR
; MOLECULE TYPE: PROTEIN
; US-08-187-756C-5

Query Match 16.3%; Score 22; DB 1; Length 198;
Best Local Similarity 100.0%; Pred. No. 2.5e-14;
Matches 22; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 114 LKDLREGIQTLMGRLEDGSPR 135
Db 120 LKDLREGIQTLMGRLEDGSPR 141

RESULT 14
US-08-710-324A-5
; Sequence 5, Application US/08710324A
; Patent No. 5962411
; GENERAL INFORMATION:
; APPLICANT: Rosen, et al.
; TITLE OF INVENTION: Human Growth Factor
; NUMBER OF SEQUENCES: 7
; CORRESPONDENCE ADDRESS:
```

ADDRESSEE: Human Genome Sciences, Inc.  
 STREET: 9410 Key West Avenue  
 CITY: Rockville  
 STATE: MD  
 COUNTRY: USA  
 ZIP: 20850  
 COMPUTER READABLE FORM:  
 MEDIUM TYPE: Floppy disk  
 COMPUTER: IBM PC compatible  
 OPERATING SYSTEM: PC-DOS/MS-DOS  
 SOFTWARE: Patent Release #1.0, Version #1.30  
 CURRENT APPLICATION DATA:  
 APPLICATION NUMBER: US/08/710,324A  
 FILING DATE: 16-SEP-1996  
 CLASSIFICATION: 435  
 PRIOR APPLICATION DATA:  
 APPLICATION NUMBER: US 08/187,756  
 FILING DATE: 27-JAN-1994  
 ATTORNEY/AGENT INFORMATION:  
 NAME: Brookes, A. Anders  
 REGISTRATION NUMBER: 36,373  
 REFERENCE/DOCKET NUMBER: PF104D1.SKB  
 TELECOMMUNICATION INFORMATION:  
 TELEPHONE: 301-309-8504  
 TELEFAX: 301-309-8439  
 INFORMATION FOR SEQ ID NO: 5:  
 SEQUENCE CHARACTERISTICS:  
 LENGTH: 198 AMINO ACIDS  
 TYPE: AMINO ACID  
 STRANDEDNESS:  
 TOPOLOGY: LINEAR  
 MOLECULE TYPE: PROTEIN  
 US-08-710-324A-5

Query Match 16.3%; Score 22; DB 2; Length 198;  
 Best Local Similarity 100.0%; Pred. No. 2.5e-14; Indels 0; Gaps 0;  
 Matches 22; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 114 LKDLDEEGIOTLMGRLEDGSPR 135  
 Db 120 LKDLDEEGIOTLMGRLEDGSPR 141

RESULT 15  
 US-08-187-756C-4  
 Sequence 4, Application US/08187756C  
 Patent No. 5597709  
 GENERAL INFORMATION:  
 APPLICANT: ROSEN, ET AL.  
 TITLE OF INVENTION: Human Growth Hormone  
 NUMBER OF SEQUENCES: 7  
 CORRESPONDENCE ADDRESS:  
 ADDRESSEE: CARELLA, BYRNE, BAIN, GILFILLAN,  
 ADDRESSEE: CECCHI, STEWART & OLSTEIN  
 STREET: 6 BECKER FARM ROAD  
 CITY: ROSELAND  
 STATE: NEW JERSEY  
 COUNTRY: USA  
 ZIP: 07068  
 COMPUTER READABLE FORM:  
 MEDIUM TYPE: 3.5 INCH DISKETTE  
 COMPUTER: IBM PS/2  
 OPERATING SYSTEM: MS-DOS  
 SOFTWARE: WORD PERFECT 5.1  
 CURRENT APPLICATION DATA:  
 APPLICATION NUMBER: US/08/187,756C  
 FILING DATE: January 27, 1994  
 CLASSIFICATION: 435  
 PRIOR APPLICATION DATA:  
 APPLICATION NUMBER:  
 FILING DATE:  
 ATTORNEY/AGENT INFORMATION:

NAME: FERRARO, GREGORY D.  
 REGISTRATION NUMBER: 36,134  
 REFERENCE/DOCKET NUMBER: 325800-55  
 TELECOMMUNICATION INFORMATION:  
 TELEPHONE: 201-994-1700  
 TELEFAX: 201-994-1744  
 INFORMATION FOR SEQ ID NO: 4:  
 SEQUENCE CHARACTERISTICS:  
 LENGTH: 217 AMINO ACIDS  
 TYPE: AMINO ACID  
 STRANDEDNESS:  
 TOPOLOGY: LINEAR  
 MOLECULE TYPE: PROTEIN  
 US-08-187-756C-4

Query Match 16.3%; Score 22; DB 1; Length 217;  
 Best Local Similarity 100.0%; Pred. No. 2.7e-14;  
 Matches 22; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 114 LKDLDEEGIOTLMGRLEDGSPR 135  
 Db 139 LKDLDEEGIOTLMGRLEDGSPR 160

Search completed: September 25, 2002, 10:05:51  
 Job time: 164 sec

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OM protein - protein search, using sw model

Run on: September 25, 2002, 10:03:42 ; Search time 16.13 Seconds  
(without alignments)  
804.219 Million cell updates/sec

Title: US-09-819-094-18  
Perfect score: 135  
Sequence: 1 MVQTVPLSRFLDHAMLOAHR.....KDLEEGIQTLMLGRLEDGSPR 135

Scoring table: OLIGO  
Gapop 60.0 , Gapext 60.0

Searched: 283138 seqs, 96089334 residues

Word size : 0

Total number of hits satisfying chosen parameters: 283138

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Listing first 1000 summaries

Database :

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1: pir1:.\*  
2: pir2:.\*  
3: pir3:.\*  
4: pir4:.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

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2	79	58.5	217	2	choriomamototropin
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4	24	17.8	199	2	B32435
5	22	16.3	217	1	STHU
6	20	14.8	217	2	I67410
7	19	14.1	212	2	I67408
8	19	14.1	217	2	I67409
9	19	14.1	217	2	I53267
10	18	13.3	217	2	I67411
11	17	12.6	217	1	STHUV
12	17	12.6	256	1	STHUV2
13	11	8.1	217	1	STBO
14	11	8.1	217	1	STSH
15	11	8.1	217	1	STGT
16	11	8.1	217	2	S32682
17	9	6.7	163	2	JN0387
18	9	6.7	190	1	A61584
19	9	6.7	190	2	JK0219
20	9	6.7	190	2	JS0429
21	9	6.7	190	2	PN0140
22	9	6.7	216	1	STRT
23	9	6.7	216	1	STMS
24	9	6.7	216	1	STFG
25	9	6.7	216	2	A60509
26	9	6.7	216	2	I46145
27	9	6.7	216	2	S49483
28	9	6.7	216	2	S04929
29	9	6.7	216	2	JC1514

somatotropin precu  
somatotropin - gol  
somatotropin precu  
EST/beta-Gal mutan  
somatotropin - Rus  
somatotropin - bow  
hypothetical prote  
kpsc protein - Esc  
hypothetical prote  
protein T16A1.9 [I  
hypothetical prote  
hypothetical prote  
probable signal pe  
somatotropin - hor  
somatotropin - gre  
somatotropin I pre  
glutamine amidotra  
conserved hypochet  
phytohemagglutinin  
ABC transporter pe  
hypothetical prote  
hypothetical prote  
flagellin flaB - R  
flagellin chain B  
protein C28H8.11 [I  
probable two-compo  
transglycosylase,  
site-specific DNA  
hypothetical prote  
WD repeat protein  
special AT-rich se  
DNA-binding protei  
leucine--tRNA liga  
ribonucleotide red  
hypothetical prote  
glycyl-tRNA synth  
glycyl tRNA synth  
glycine--tRNA liga  
protein QF200021 -  
laminin B1 - bovin  
H11 protein - Toxo  
hypothetical prote  
hypothetical prote  
hypothetical prote  
AcOrf-120 protein  
somatotropin B - A  
hypothetical prote  
ferredoxin [2Fe-2S  
hypothetical prote  
gene 80 protein -  
glutamyl-tRNA (Gln  
exogenous DNA-bind  
hypothetical prote  
hypothetical prote  
cysteine protieina  
hypothetical prote  
ribosome-binding f  
probable membrane  
conserved hypochet  
hypothetical prote  
myelin P2 protein  
myelin P2 protein  
myelin P2 protein  
very hypothetical  
hypothetical prote  
somatotropin A - A  
probable transcrip  
hypothetical prote  
probable membrane  
hypothetical 16.3K  
hypothetical 16.5K  
PTS fructose-speci  
probable membrane

103	6	4.4	154	2	A49786	bacteriocin immuni	176	6	4.4	226	2	F69753	two-component resp
104	6	4.4	157	2	C81072	hypothetical prote	177	6	4.4	228	2	S76876	hypothetical prote
105	6	4.4	159	2	A83600	phosphopantetheine	178	6	4.4	230	1	B8AGA6	virB8 protein - Ag
106	6	4.4	160	2	T12769	hypothetical yoke	179	6	4.4	230	2	F96636	hypothetical prote
107	6	4.4	161	1	VCTWCP	coat protein - sun	180	6	4.4	231	2	S75380	hypothetical prote
108	6	4.4	162	1	B41659	benzoate 1,2-dioxy	181	6	4.4	233	1	EWKBC	atactin precursor,
109	6	4.4	162	2	D84684	hypothetical prote	182	6	4.4	235	2	D72102	ABC transport ATPa
110	6	4.4	165	2	S15800	hypothetical prote	183	6	4.4	235	2	G86519	ABC transport ATPa
111	6	4.4	166	2	T40988	probable glutaredo	184	6	4.4	236	2	AF2051	two-component syst
112	6	4.4	168	2	T47054	hypothetical prote	185	6	4.4	236	2	E71965	hypothetical prote
113	6	4.4	172	2	F88542	protein ZK637.15 [	186	6	4.4	236	2	E71012	hypothetical prote
114	6	4.4	172	2	G97967	transposase (orf1)	187	6	4.4	238	2	H89830	hypothetical prote
115	6	4.4	174	2	A72425	conserved hypothet	188	6	4.4	239	2	AC2745	glycerophosphoryl
116	6	4.4	177	2	B53304	transfer protein B	189	6	4.4	240	1	S76714	hypothetical prote
117	6	4.4	178	2	C40956	interleukin-1 rece	190	6	4.4	240	2	T23440	hypothetical prote
118	6	4.4	178	2	A44610	interleukin-1 rece	191	6	4.4	244	2	JN0487	acetoacetate decar
119	6	4.4	179	2	G87295	hypothetical prote	192	6	4.4	245	2	B71006	hypothetical prote
120	6	4.4	183	2	A60623	somatotropin - blu	193	6	4.4	246	2	B57526	hypothetical prote
121	6	4.4	183	2	T39529	hypothetical prote	194	6	4.4	251	2	G72454	hypothetical prote
122	6	4.4	184	2	T17446	hypothetical 21.IK	195	6	4.4	253	2	C81098	fimbrial biogenesis
123	6	4.4	184	2	AD0232	hypothetical prote	196	6	4.4	253	2	G81843	probable lipoprote
124	6	4.4	184	2	D97995	transposase (orf1)	197	6	4.4	255	2	C95411	probable GntR-fami
125	6	4.4	185	2	D82998	hypothetical prote	198	6	4.4	257	1	B8AG55	virB8 protein prec
126	6	4.4	185	2	F87279	response regulator	199	6	4.4	261	2	A98950	hypothetical prote
127	6	4.4	185	2	AD1183	hypothetical prote	200	6	4.4	261	2	C64948	probable membrane
128	6	4.4	185	2	AE1540	hypothetical prote	201	6	4.4	261	2	E85798	hypothetical prote
129	6	4.4	187	2	AC2363	hypothetical prote	202	6	4.4	264	2	T05594	hypothetical prote
130	6	4.4	189	2	A29793	apolipoprotein III	203	6	4.4	265	2	T14645	hypothetical prote
131	6	4.4	190	2	S70261	outer surface prot	204	6	4.4	268	2	E64613	cell division memb
132	6	4.4	192	2	S34401	hypothetical prote	205	6	4.4	269	2	E97726	DNA-directed DNA p
133	6	4.4	192	2	S12314	hypothetical prote	206	6	4.4	270	2	JE0167	nitric-oxide reduc
134	6	4.4	192	2	E82390	hypothetical prote	207	6	4.4	271	2	A64782	probable transcrip
135	6	4.4	196	2	B49453	transcription init	208	6	4.4	271	2	B85550	probable regulator
136	6	4.4	197	2	S26876	hypothetical prote	209	6	4.4	271	2	G90699	repressor of allan
137	6	4.4	198	1	VHXRRSE	minor outer capsid	210	6	4.4	272	2	A83672	hypothetical prote
138	6	4.4	198	1	MXRRSE	minor outer capsid	211	6	4.4	274	2	E97202	hypothetical prote
139	6	4.4	198	1	MXRRA	minor outer capsid	212	6	4.4	275	2	AB2466	ABC transporter su
140	6	4.4	198	1	MXRBB	minor outer capsid	213	6	4.4	277	2	B97527	hypothetical prote
141	6	4.4	198	1	MXRBB3	minor outer capsid	214	6	4.4	277	2	AC2746	phosphatidate cytl
142	6	4.4	198	1	MXRDS	minor outer capsid	215	6	4.4	277	2	T21630	hypothetical prote
143	6	4.4	198	1	AC0393	Na+-translocating	216	6	4.4	280	2	C70617	probable transcrip
144	6	4.4	198	2	S01445	hypothetical prote	217	6	4.4	281	2	B86820	conserved hypothet
145	6	4.4	199	2	C71979	urease accessory p	218	6	4.4	283	2	T23785	hypothetical prote
146	6	4.4	199	2	D64528	urease accessory p	219	6	4.4	286	2	D84193	hypothetical prote
147	6	4.4	200	1	MXRBS	minor outer capsid	220	6	4.4	287	2	T41579	probable glutamate
148	6	4.4	200	2	S40118	minor outer capsid	221	6	4.4	287	2	S76995	hypothetical prote
149	6	4.4	200	2	S40114	NSP5 (NS26,VP11) -	222	6	4.4	290	2	S76381	probable 3-hydroxy
150	6	4.4	200	2	S40115	minor outer capsid	223	6	4.4	290	2	T49631	probable Ni-binding
151	6	4.4	200	2	S40120	NSP5 (NS26,VP11) -	224	6	4.4	290	2	S46962	exeC protein - Aer
152	6	4.4	201	2	AE2919	3-isopropylmalate	225	6	4.4	292	2	T48327	hypothetical prote
153	6	4.4	201	2	D82896	hypothetical prote	226	6	4.4	293	2	C71703	hypothetical prote
154	6	4.4	204	2	H83929	hypothetical prote	227	6	4.4	296	2	AC2874	hypothetical prote
155	6	4.4	205	2	T46553	recF protein [impo	228	6	4.4	296	2	G90063	homoserine kinase
156	6	4.4	207	2	A86568	Holliday junction	229	6	4.4	297	2	A70413	protein F52D2.3 [1
157	6	4.4	207	2	H72056	Holliday junction	230	6	4.4	297	2	B89473	protein F52D2.3 [1
158	6	4.4	209	2	I40281	outer surface prot	231	6	4.4	299	2	H97650	ATPase AGR_C.4398
159	6	4.4	210	2	E95198	ABC transporter, A	232	6	4.4	299	2	B95939	conserved spermidin
160	6	4.4	210	2	I49294	CD7 antigen - mous	233	6	4.4	303	1	A69815	conserved hypothet
161	6	4.4	211	2	G96984	probable endonucle	234	6	4.4	304	2	I50721	synemin - chicken
162	6	4.4	213	2	H88542	protein ZK637.12 [	235	6	4.4	304	2	E97343	hypothetical prote
163	6	4.4	214	2	T14920	hypothetical prote	236	6	4.4	305	2	D84498	hypothetical prote
164	6	4.4	215	2	JC1133	alpha-s1-casein pr	237	6	4.4	306	2	JC1120	sdsB protein - Pse
165	6	4.4	216	2	F97693	3-isopropylmalate	238	6	4.4	310	2	A81298	formate dehydrogen
166	6	4.4	216	2	A98065	hypothetical prote	239	6	4.4	310	2	D70328	histidine kinase s
167	6	4.4	219	2	S03766	virulence protein	240	6	4.4	311	2	T37155	probable oxidoredu
168	6	4.4	219	2	S14242	yopE protein - Yer	241	6	4.4	311	2	T00551	lysophospholipase
169	6	4.4	219	2	T43605	targeted effector	242	6	4.4	311	2	E86436	F28K20.3 protein -
170	6	4.4	219	2	E82825	hypothetical prote	243	6	4.4	312	2	C82298	tRNA pseudouridine
171	6	4.4	221	2	E64305	conserved hypothet	244	6	4.4	315	2	E90435	conserved hypothet
172	6	4.4	221	2	A70543	hypothetical prote	245	6	4.4	315	2	C96666	protein F22c12.4 [
173	6	4.4	225	1	A45270	sensory response r	246	6	4.4	316	2	S35516	type II site-speci
174	6	4.4	225	2	F86417	hypothetical prote	247	6	4.4	317	2	B83390	probable transmem
175	6	4.4	225	2	AH0757	probable cobalt tr	248	6	4.4	320	2	B83238	probable oxidoredu

249	6	4.4	320	2	E71139	hypothetical prote	322	6	4.4	413	2	AF1427	an hypothetical pr
250	6	4.4	322	2	AB2078	iron(III) dicitrat	323	6	4.4	417	2	T49178	hypothetical prote
251	6	4.4	326	2	C71077	hypothetical prote	324	6	4.4	418	2	C95184	IS1167, transposas
252	6	4.4	327	2	AB2194	hypothetical prote	325	6	4.4	421	2	F95096	IS1167, transposas
253	6	4.4	328	2	I64164	hypothetical prote	326	6	4.4	421	2	AI3523	glycerol-3-phospha
254	6	4.4	329	2	H62233	hypothetical prote	327	6	4.4	422	2	S63226	hypothetical prote
255	6	4.4	331	2	A26666	divalent cation tr	328	6	4.4	423	2	B72403	glucose-1-phosphat
256	6	4.4	334	2	T20728	hypothetical prote	329	6	4.4	424	2	S44079	sulfate adenyllytr
257	6	4.4	334	2	G84123	iron (III) dicitra	330	6	4.4	425	1	G69331	conserved hypotet
258	6	4.4	335	2	F86586	oxidoreductase [im	331	6	4.4	428	2	S70670	3-deoxy-D-manno-2-
259	6	4.4	335	2	C72038	conserved hypotet	332	6	4.4	429	2	A56265	uracil transport p
260	6	4.4	335	2	D64384	hydrogenase expres	333	6	4.4	429	2	F91048	uracil transport E
261	6	4.4	339	2	T44993	tRNA-intron endonu	334	6	4.4	429	2	C85893	uracil transport I
262	6	4.4	340	2	T40392	probable 3-beta-hy	335	6	4.4	429	2	AG0818	uracil permease (u
263	6	4.4	344	2	E71291	flagellar motor sw	336	6	4.4	429	2	AG4511	probable aspartate
264	6	4.4	345	2	A48462	dense granule prot	337	6	4.4	429	2	D95911	probable exported
265	6	4.4	348	2	T08990	hypothetical prote	338	6	4.4	430	2	T46420	hypothetical prote
266	6	4.4	349	2	T20202	hypothetical prote	339	6	4.4	431	1	WZBSDS	adenylosuccinate I
267	6	4.4	352	2	H72747	histidinol-phospha	340	6	4.4	431	2	T14413	S-locus-specific g
268	6	4.4	353	2	H72747	probable RNA 3'-te	341	6	4.4	431	2	T05581	hypothetical prote
269	6	4.4	353	2	T45949	lectin-like protei	342	6	4.4	437	2	T44520	lipopolysaccharide
270	6	4.4	354	2	B97120	DNA uptake protei	343	6	4.4	437	2	T44509	Vi polysaccharide
271	6	4.4	355	2	S06939	hypothetical prote	344	6	4.4	439	2	E89887	transposase for in
272	6	4.4	356	1	J01939	core protein VP7 -	345	6	4.4	440	2	G96600	protein FI4J16.24
273	6	4.4	356	2	H90168	GTP-binding protei	346	6	4.4	440	2	JS0374	hypothetical 51.6K
274	6	4.4	356	2	AG1321	E. coli DNA-damage	347	6	4.4	443	2	D71405	probable protein k
275	6	4.4	359	2	B81718	translation releas	348	6	4.4	444	2	C87297	dihydroorotase [im
276	6	4.4	359	2	JC4224	alpha-N-acetylneur	349	6	4.4	444	2	T40307	hypothetical prote
277	6	4.4	359	2	S24225	polysialyltransfer	350	6	4.4	447	2	F96952	glycerol-3-phospha
278	6	4.4	359	2	IS9403	alpha-2,8-polysial	351	6	4.4	451	1	FOFEGY	retrovirus-related
279	6	4.4	361	2	S07567	translational elonga	352	6	4.4	451	2	S28839	retrovirus-related
280	6	4.4	362	1	DERZNI	NADH dehydrogenase	353	6	4.4	451	2	C83164	hypothetical prote
281	6	4.4	362	2	C97448	hypothetical prote	354	6	4.4	453	1	B70426	periplasmic serine
282	6	4.4	363	2	B75132	cell division cont	355	6	4.4	454	2	G86284	F9L1.4 protein - A
283	6	4.4	363	2	D96900	recF, ABC family A	356	6	4.4	455	2	G96708	hypothetical prote
284	6	4.4	364	2	C90255	hypothetical prote	357	6	4.4	456	2	E83750	gluconate permease
285	6	4.4	366	2	F89936	conserved hypotet	358	6	4.4	463	2	S27491	hypothetical prote
286	6	4.4	367	2	AG0480	aspartate semialde	359	6	4.4	467	1	S45493	serine proteinase
287	6	4.4	368	2	E72408	response regulat	360	6	4.4	467	1	P2WL33	L2 protein - human
288	6	4.4	368	2	T21348	hypothetical prote	361	6	4.4	469	2	T06024	1-aminocyclopropan
289	6	4.4	369	2	T29207	hypothetical prote	362	6	4.4	469	2	T52659	sulfate adenyllytr
290	6	4.4	369	2	D81196	conserved hypotet	363	6	4.4	469	2	C70357	hypothetical prote
291	6	4.4	371	2	A97162	stage V sporulatio	364	6	4.4	470	2	S71174	1-aminocyclopropan
292	6	4.4	372	2	G83707	hypothetical prote	365	6	4.4	470	2	S57902	peptidase V - Lact
293	6	4.4	373	2	D71094	probable cofactor	366	6	4.4	472	1	P2WL58	L2 protein - human
294	6	4.4	374	2	D84632	hypothetical prote	367	6	4.4	472	2	A83331	probable two-compo
295	6	4.4	375	2	C71917	probable transamin	368	6	4.4	475	2	H85156	protein kinase [im
296	6	4.4	375	2	A81086	conserved hypotet	369	6	4.4	476	2	H84524	probable fatty aci
297	6	4.4	375	2	G81857	hypothetical prote	370	6	4.4	477	2	AD3007	hypothetical prote
298	6	4.4	376	2	S52137	MiD2 protein - yea	371	6	4.4	478	2	C70416	trigger factor tig
299	6	4.4	379	2	A70384	glutamate N-acetyl	372	6	4.4	480	2	T34102	hypothetical prote
300	6	4.4	384	1	BVECCX	membrane protein c	373	6	4.4	481	2	E82372	potassium uptake p
301	6	4.4	384	2	B90678	cyanate transport	374	6	4.4	484	2	H84723	probable triacylg
302	6	4.4	384	2	F85528	cyanate transport	375	6	4.4	486	2	C75533	probable lipase -
303	6	4.4	388	2	B64459	Na+/H+-exchanging	376	6	4.4	486	2	T38174	probable GCS1/GLO3
304	6	4.4	389	2	AB3254	hypothetical cytos	377	6	4.4	489	2	S51428	hypothetical prote
305	6	4.4	391	2	D69462	pyruvate synthase	378	6	4.4	490	2	AC2458	hypothetical prote
306	6	4.4	392	2	A97308	probable secreted	379	6	4.4	491	2	C96585	hypothetical prote
307	6	4.4	393	2	S47333	retrovirus-related	380	6	4.4	492	2	S65238	probable membrane
308	6	4.4	395	2	A95860	hypothetical prote	381	6	4.4	493	2	S76517	hypothetical prote
309	6	4.4	398	2	F84498	hypothetical prote	382	6	4.4	494	2	S58940	alpha-amylase (EC
310	6	4.4	399	2	G82349	conserved hypotet	383	6	4.4	494	2	S58939	alpha-amylase (EC
311	6	4.4	401	2	G77552	conserved hypotet	384	6	4.4	494	2	S58942	alpha-amylase (EC
312	6	4.4	404	2	S45923	probable phosphop	385	6	4.4	494	2	S58941	alpha-amylase (EC
313	6	4.4	404	2	T20055	hypothetical prote	386	6	4.4	494	2	S58943	alpha-amylase (EC
314	6	4.4	405	2	F75596	hypothetical prote	387	6	4.4	494	2	S58946	alpha-amylase (EC
315	6	4.4	407	1	VCBB2G	coat protein precu	388	6	4.4	494	2	S58947	alpha-amylase (EC
316	6	4.4	407	1	VCBBFH	coat protein precu	389	6	4.4	494	2	S58945	alpha-amylase (EC
317	6	4.4	408	2	AB2162	coat protein precu	390	6	4.4	494	2	S58944	alpha-amylase (EC
318	6	4.4	410	2	A70188	polynucleotide ade	391	6	4.4	494	2	S58938	alpha-amylase (EC
319	6	4.4	411	2	S48647	peptidylprolyl iso	392	6	4.4	494	2	S89337	alpha-amylase (EC
320	6	4.4	412	2	F87460	hypothetical prote	393	6	4.4	499	2	D83333	hypothetical prote
321	6	4.4	413	2	AD1801	hypothetical prote	394	6	4.4	505	1	S24550	protein-tyrosine k

395	6	4.4	509	1	VGNVPC	major envelope gly	468	6	4.4	662	2	T32821	hypothetical prote
396	6	4.4	509	2	T10395	protein gp64 - Org	469	6	4.4	664	1	TNBE70	70.5K alpha trans-
397	6	4.4	509	2	A00649	probable secreted	470	6	4.4	666	2	S01283	hypothetical prote
398	6	4.4	511	2	S58752	NADH dehydrogenase	471	6	4.4	669	2	T01308	probable serine/th
399	6	4.4	512	2	A72866	major budded virus	472	6	4.4	670	2	T37483	hypothetical ptal-
400	6	4.4	513	2	T37180	probable membrane	473	6	4.4	674	2	T40214	hypothetical prote
401	6	4.4	515	2	S56784	hypothetical prote	474	6	4.4	676	1	EDBE22	immediate-early pr
402	6	4.4	522	2	C90073	hypothetical prote	475	6	4.4	676	1	EDBE23	immediate-early pr
403	6	4.4	529	1	VGNVAC	major envelope gly	476	6	4.4	677	2	T75321	ABC transporter, A
404	6	4.4	530	2	H86668	asparagine synthet	477	6	4.4	680	2	T36472	probable secreted
405	6	4.4	530	2	T41865	GP64/67 EFP orf128	478	6	4.4	686	2	T19371	hypothetical prote
406	6	4.4	533	2	T04481	Mlo protein - barl	479	6	4.4	687	2	S58778	probable membrane
407	6	4.4	535	2	G95155	hypothetical prote	480	6	4.4	690	2	H86464	hypothetical prote
408	6	4.4	535	2	B98022	hypothetical prote	481	6	4.4	691	2	E70906	probable beta-gluc
409	6	4.4	536	2	B98277	hypothetical prote	482	6	4.4	691	2	D90592	hypothetical prote
410	6	4.4	536	2	H71563	hypothetical prote	483	6	4.4	692	2	T03377	homeotic protein H
411	6	4.4	538	1	C64181	formate-dependent	484	6	4.4	693	1	TNBEF7	73.8K alpha trans-
412	6	4.4	539	2	T45009	propionyl-CoA carb	485	6	4.4	693	2	JE0260	sulfite reductase
413	6	4.4	541	2	A25516	propionyl-CoA carb	486	6	4.4	695	2	C86731	copper-potassium t
414	6	4.4	541	2	A00666	probable exported	487	6	4.4	696	2	JC7361	foliitropin recept
415	6	4.4	541	2	I41124	acyl CoA dehydroge	488	6	4.4	706	2	AE2494	hypothetical prote
416	6	4.4	544	2	T05952	Mlo-hl protein - b	489	6	4.4	719	2	S25237	homeotic protein H
417	6	4.4	546	2	I39858	germination respon	490	6	4.4	725	2	C84423	probable ABC trans
418	6	4.4	546	2	C91274	probable acyl coen	491	6	4.4	733	2	T28145	RING3 kinase - chi
419	6	4.4	546	2	C86115	probable acyl coen	492	6	4.4	736	2	T06271	probable ethylene-
420	6	4.4	548	2	G81959	conserved hypothet	493	6	4.4	738	2	A48246	ethylene-response
421	6	4.4	551	2	C64894	hypothetical prote	494	6	4.4	738	2	T01897	ethylene-response
422	6	4.4	551	2	E90882	probable glycoprot	495	6	4.4	740	2	T51619	probable ethylene
423	6	4.4	551	2	B85736	probable glycoprot	496	6	4.4	741	2	T16992	ethylene receptor
424	6	4.4	564	2	C42523	A55R protein - vac	497	6	4.4	743	2	T32421	hypothetical prote
425	6	4.4	564	2	J01792	Salp17R protein -	498	6	4.4	754	2	S71783	ETRI protein homol
426	6	4.4	565	2	S75255	tyrS protein slr10	499	6	4.4	754	2	T52288	ethylene receptor
427	6	4.4	566	2	A75481	sensor histidine k	500	6	4.4	754	2	A56619	female sterile hom
428	6	4.4	568	2	T06489	probable peptidylp	501	6	4.4	756	2	G86150	F22M8.3 protein -
429	6	4.4	569	2	T52056	vacuolar protein-s	502	6	4.4	763	2	AE2443	penicillin-binding
430	6	4.4	569	2	T00445	membrane associate	503	6	4.4	768	2	T38188	probable DNA repa
431	6	4.4	571	2	H97070	hypothetical prote	504	6	4.4	771	2	B70564	hypothetical prote
432	6	4.4	572	2	T29880	hypothetical prote	505	6	4.4	774	2	T31512	hypothetical prote
433	6	4.4	586	2	A12065	hypothetical prote	506	6	4.4	776	2	C69072	anaerobic ribonucl
434	6	4.4	588	2	A00136	succinate dehydrog	507	6	4.4	777	2	I48100	ADAM 5 protein pre
435	6	4.4	589	2	E88492	protein T07E3.1 li	508	6	4.4	778	2	A64656	hypothetical prote
436	6	4.4	593	2	S51946	pyruvate kinase (E	509	6	4.4	778	2	T71944	hypothetical prote
437	6	4.4	596	2	T23193	hypothetical prote	510	6	4.4	780	2	S62418	hypothetical prote
438	6	4.4	598	2	T05329	hypothetical prote	511	6	4.4	780	2	I47038	vasopressin-activa
439	6	4.4	601	2	A82110	ATP-binding protei	512	6	4.4	783	2	T45899	receptor protein k
440	6	4.4	602	1	A35385	hydrogen dehydroge	513	6	4.4	784	2	T51759	[glutamate--ammoni
441	6	4.4	603	2	G87669	acyl-CoA dehydroge	514	6	4.4	784	2	A24050	ribonucleoside-dip
442	6	4.4	604	2	E75119	hypothetical prote	515	6	4.4	792	2	S16680	probable cation-tr
443	6	4.4	607	2	T33184	hypothetical prote	516	6	4.4	792	2	C71250	probable potassium
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445	6	4.4	609	2	A41081	alpha-1-inhibitor	518	6	4.4	795	1	QRRTG	hypothetical prote
446	6	4.4	611	2	S38162	translation elonga	519	6	4.4	796	2	S46593	hypothetical prote
447	6	4.4	613	2	T00758	ethylene response	520	6	4.4	798	2	T34248	pmt2 methyltransf
448	6	4.4	613	2	T14432	probable ethylene	521	6	4.4	802	2	T37754	ribonucleoside-dip
449	6	4.4	618	2	G75113	NADH dehydrogenase	522	6	4.4	804	2	B48687	leucine--tRNA liga
450	6	4.4	620	2	AE3222	hypothetical prote	523	6	4.4	806	2	G71805	leucine--tRNA liga
451	6	4.4	624	2	JC5471	regulatory protein	524	6	4.4	806	2	C64713	helicase homolog C
452	6	4.4	625	2	S18420	regulatory protein	525	6	4.4	811	2	T30968	probable nitrate r
453	6	4.4	625	2	H84863	hypothetical prote	526	6	4.4	828	2	D64990	probable nitrate r
454	6	4.4	630	1	BWPSAP	gida protein - pse	527	6	4.4	828	2	G91015	probable nitrate r
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457	6	4.4	631	2	T08051	probable ethylene	530	6	4.4	835	2	T30030	hypothetical prote
458	6	4.4	635	2	T06537	ethylene receptor	531	6	4.4	837	2	C69200	surface proteinase
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460	6	4.4	637	2	T08050	probable ethylene	533	6	4.4	843	2	T41237	conserved hypothet
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466	6	4.4	656	2	B82056	glutathione-regula	539	6	4.4	851	2	AE3567	ATP-dependent heli
467	6	4.4	662	2	S51971	probable membrane	540	6	4.4	852	2	T21362	hypothetical prote



541 4.4 852 2 A40411 translation elonga  
542 4.4 853 2 H69172 DNA helicase II re  
543 4.4 855 2 T07015 Cf-4A protein - to  
544 4.4 856 2 I58411 protein-tyrosine k  
545 4.4 856 2 G71133 probable alpha-man  
546 4.4 857 2 JC7716 prominin - rat  
547 4.4 858 1 EFH02 translation elonga  
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549 4.4 858 2 A25440 translation elonga  
550 4.4 869 2 T97126 mismatch repair pr  
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552 4.4 870 2 T10634 hypothetical prote  
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555 4.4 884 2 S55651 DNA helicase-prima  
556 4.4 890 2 C96654 hypothetical prote  
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561 4.4 938 2 T46924 probable translati  
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571 4.4 989 2 T46183 zinc proteinase (E  
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575 4.4 1003 2 H82883 hypothetical prote  
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618 4.4 1330 2 S49010 embryonic receptor  
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620 4.4 1336 2 I60598 F1t-1 tyrosine kin  
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622 4.4 1338 2 T30565 MAP kinase kinase  
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629 4.4 1429 2 T13720 gene expanded prot  
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636 4.4 1487 2 S15904 alpha-1 proteinase  
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638 4.4 1506 2 A96808 hypothetical prote  
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649 4.4 1864 1 JQ1657 genome polyprotein  
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658 4.4 2206 2 JC5280 voltage-dependent  
659 4.4 2212 2 T28157 erythrocyte membra  
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684 3.7 17 2 A60743 ornithine carbamoy  
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687 5 3.7 22 2 C60691 phycobilisome 99k  
688 5 3.7 22 2 S05236 exoenzyme C3 - Clo  
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761 5 3.7 74 2 B53578  
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765 5 3.7 76 2 T28486 hypothetical prote  
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probable allophycocyanin  
hypothetical prote  
similar to gibberine  
gene AFX1 protein  
probable regulator  
cofactor A - mouse  
transcription regu  
50S ribosomal prot  
gene 4.2 protein -  
hypothetical prote  
hypothetical prote  
hypothetical prote  
hypothetical prote  
hypothetical prote  
insulin precursor  
ribosomal protein  
hypothetical prote  
PTS system, cellob  
T-cell receptor al  
hypothetical prote  
hypothetical prote  
hypothetical prote  
T cell receptor Er  
hypothetical prote  
hypothetical prote  
conserved hypothet  
hypothetical prote  
hypothetical prote  
ribosomal protein  
ribosomal protein  
hypothetical 12.8K  
conserved hypothet  
conserved hypothet  
hypothetical prote  
probable membrane  
hypothetical prote  
PTS beta-glucoside  
PTS beta-glucoside  
hypothetical prote  
phytochrome - Meso  
hypothetical prote  
head formation pro  
hypothetical prote  
hypothetical prote  
homolog to yeast g  
hypothetical prote  
hypothetical prote  
gdp-fucose synthet  
NADH dehydrogenase  
natriuretic peptid  
NADH dehydrogenase  
NADH dehydrogenase  
NADH dehydrogenase  
T-cell receptor de  
LCR negative regul  
virC-region hypoth  
LCR negative regul  
hypothetical prote  
hypothetical prote  
probable erpK prot  
Ig lambda chain pr  
hypothetical prote  
hypothetical prote  
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hypothetical prote  
hypothetical prote  
Zn finger protein,  
ribosomal protein  
probable membrane

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hypothetical prote  
 hypothetical prote  
 NADH dehydrogenase  
 NADH dehydrogenase  
 transcription fact  
 probable lipoprote  
 hypothetical prote  
 probable terminase  
 unknown protein en  
 HesB/YadR/Yfhr fam  
 hypothetical prote  
 phosphoribosyl-AMP  
 multidrug-efflux t  
 hypothetical prote  
 hypothetical prote  
 probable integral  
 probable membrane  
 conserved hypothet  
 hypothetical l3k p  
 hypothetical prote  
 hypothetical l3.7k  
 probable phosphoes

## ALIGNMENTS

RESULT 1  
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 chorionammatropin A precursor [validated] - human  
 N;Alternate names: chorionic somatomammotropin 1; placental lactogen  
 C;Species: Homo sapiens (man)  
 C;Date: 23-Oct-1981 #sequence\_revision 23-Oct-1981 #text\_change 08-Dec-2000  
 C;Accession: C32435; A94422; I52342; A93833; A93192; A90054; A94427; A61283; I55229; I59  
 R;Chen, E.Y.; Liao, Y.C.; Smith, D.H.; Barrera-Saldana, H.A.; Gellinas, R.E.; Seeburg, P.  
 Genomics 4, 479-497, 1999  
 A;Title: The human growth hormone locus: nucleotide sequence, biology, and evolution.  
 A;Reference number: A32435; MUID:89307277  
 A;Accession: C32435  
 A;Molecule type: DNA  
 A;Residues: 1-217 <GOO>  
 A;Cross-references: GB:J03071; NID:g183148; PIDN:AAA52551.1; PID:g183151  
 R;Goodman, H.M.; DeNoto, F.; Fiddes, J.C.; Hallowell, R.A.; Page, G.S.; Smith, S.; Tisch  
 in Mobilization and Reassembly of Genetic Information, Scott, W.A., Werner, R., Joseph,  
 A;Reference number: A94422  
 A;Accession: A94422  
 A;Molecule type: mRNA  
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 R;Tanaka, M.; Masuda, N.; Watahiki, M.; Yamakawa, M.; Shimizu, K.; Nagai, J.; Nakashima,  
 Biochem. Int. 16, 287-292, 1988  
 A;Title: cDNA cloning of human chorionic somatomammotropin-1 mRNA whose transcription wa  
 A;Reference number: I52342; MUID:88209096  
 A;Accession: I52342  
 A;Status: translated from GB/EMBL/DDBJ  
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 A;Cross-references: GB:M35419; NID:g506822  
 R;Sherwood, L.M.; Burstein, Y.; Schechter, I.  
 Proc. Natl. Acad. Sci. U.S.A. 76, 3819-3823, 1979  
 A;Title: Primary structure of the NH-2-terminal extra piece of the precursor to human pl  
 A;Reference number: A93833; MUID:80034970  
 A;Accession: A93833  
 A;Molecule type: protein  
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 A;Experimental source: placenta  
 R;Shine, J.; Seeburg, P.H.; Martial, J.A.; Baxter, J.D.; Goodman, H.M.  
 Nature 270, 494-499, 1977  
 A;Title: Construction and analysis of recombinant DNA for human chorionic somatomammotr  
 A;Reference number: A93192; MUID:78071761  
 A;Accession: A93192  
 A;Molecule type: DNA  
 A;Residues: 50-217 <SHI>  
 A;Experimental source: placenta

R;Li, C.H.; Dixon, J.S.; Chung, D.  
 Arch. Biochem. Biophys. 155, 95-110, 1973  
 A;Title: Amino acid sequence of human chorionic somatomammotropin.  
 A;Reference number: A90054; MUID:73201971  
 A;Accession: A90054  
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 A;Experimental source: placenta  
 R;Niall, H.D.  
 in Prolactin and Carcinogenesis, Proc. Fourth Tenovus Workshop Prolactin, Griffiths,  
 A;Title: The chemistry of the human lactogenic hormones.  
 A;Reference number: A94427  
 A;Accession: A94427  
 A;Molecule type: protein  
 A;Residues: 27-217 <NIA>  
 A;Experimental source: placenta  
 R;Nic A Baird, N.; Tipton, K.F.  
 Biochem. Soc. Trans. 19, 20S, 1991  
 A;Title: Catechol-O-methyltransferase from human placenta: purification and some prop  
 A;Reference number: A61283; MUID:91244006  
 A;Accession: A61283  
 A;Molecule type: protein  
 A;Residues: 27-46 <NIC>  
 A;Note: chorionammatropin apparently copurified with placental catechol-O-methyltrans  
 R;Sherwood, L.M.; Handwerker, S.; McLaurin, W.D.; Lanner, M.  
 Nature New Biol. 233, 59-61, 1971  
 A;Title: Amino-acid sequence of human placental lactogen.  
 A;Reference number: A93401; MUID:72016313  
 A;Contents: annotation  
 R;Sherwood, L.M.; Handwerker, S.; McLaurin, W.D.; Lanner, M.  
 Nature New Biol. 235, 64, 1972  
 A;Reference number: A93405  
 A;Contents: annotation  
 R;Schneider, A.B.; Kowalski, K.; Russell, J.; Sherwood, L.M.  
 J. Biol. Chem. 254, 3782-3787, 1979  
 A;Title: Identification of the interchain disulfide bonds of dimeric human placental  
 A;Reference number: A92251; MUID:79173081  
 A;Contents: annotation: dimeric disulfide bonds  
 R;Seiby, M.J.; Barta, A.; Baxter, J.D.; Bell, G.I.; Eberhardt, N.L.  
 J. Biol. Chem. 259, 13131-13138, 1984  
 A;Title: Analysis of a major human chorionic somatomammotropin gene. Evidence for two  
 A;Reference number: I55229; MUID:85030426  
 A;Accession: I55229  
 A;Status: translated from GB/EMBL/DDBJ  
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 R;Seeburg, P.H.; Shine, J.; Martial, J.A.; Ullrich, A.; Goodman, H.  
 Trans. Assoc. Am. Physicians 90, 109-116, 1977  
 A;Title: Nucleotide sequence of a human gene coding for a polypeptide hormone.  
 A;Reference number: I59658; MUID:78160787  
 A;Accession: I59658  
 A;Status: translated from GB/EMBL/DDBJ  
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 C;Keywords: hormone; placenta  
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 F:27-217/Product: chorionammatropin A #status experimental <MAT>  
 F:79-191/Disulfide bonds: #status experimental  
 F:208-215/Disulfide bonds: (in monomeric form) #status experimental  
 F:208/Disulfide bonds: interchain (to 215 in dimeric form) #status experimental  
 F:215/Disulfide bonds: interchain (to 208 in dimeric form) #status experimental

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QY 55 FSDSIPTPSNMEETQKSNLELLRISLLIESWLEPVRLSRMFANNLVYDTSDDYHL 114
DB 80 FSDSIPTPSNMEETQKSNLELLRISLLIESWLEPVRLSRMFANNLVYDTSDDYHL 139

QY 115 LKLEEGIQTLGRLLEDGS 133
DB 140 LKLEEGIQTLGRLLEDGS 158

RESULT 2
E32435
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N:Alternate names: chorionic somatomamotropin 2
C:Species: Homo sapiens (man)
C:Date: 29-Dec-1989 #sequence_revision 29-Dec-1989 #text_change 16-Jul-1999
C:Accession: E32435
R:Chen, E.Y.; Liao, Y.C.; Smith, D.H.; Barrera-Saldana, H.A.; Gelinas, R.E.; Seeburg, P.
Genomics 4, 479-497, 1989
A:Title: The human growth hormone locus: nucleotide sequence, biology, and evolution.
A:Reference number: A32435; MUID:89307277
A:Accession: E32435
A:Status: preliminary
A:Status: preliminary
A:Molecule type: DNA
A:Residues: 1-217 <CHE>
A:Cross-references: GB:J03071; NID:g183148; PIDN:AAA52553.1; PID:g183153
C:Superfamily: prolactin

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Best Local Similarity 100.0%; Pred. No. 1.9e-71;
Matches 79; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 55 FSDSIPTPSNMEETQKSNLELLRISLLIESWLEPVRLSRMFANNLVYDTSDDYHL 114
DB 80 FSDSIPTPSNMEETQKSNLELLRISLLIESWLEPVRLSRMFANNLVYDTSDDYHL 139

QY 115 LKLEEGIQTLGRLLEDGS 133
DB 140 LKLEEGIQTLGRLLEDGS 158

RESULT 3
A26449
Chorionamototropin precursor (allele hCS-3) - human
C:Species: Homo sapiens (man)
C:Date: 30-Jun-1988 #sequence_revision 30-Jun-1988 #text_change 28-Jul-1995
C:Accession: A26449
R:Hirt, H.; Kimmelman, J.; Birnbaum, M.J.; Chen, E.Y.; Seeburg, P.H.; Eberhardt, N.L.; Ba
DNA 6, 59-70, 1987
A:Title: The human growth hormone gene locus: structure, evolution, and allelic variati
A:Reference number: A26449; MUID:87161235
A:Accession: A26449
A:Molecule type: DNA
A:Residues: 1-215 <HIR>
C:Superfamily: prolactin
F:1-26/Domain: signal sequence #status predicted <SIG>
F:27-215/Product: chorionamototropin, hCS-3 allele #status predicted <MAT>

Query Match 38.5%; Score 52; DB 2; Length 215;
Best Local Similarity 100.0%; Pred. No. 2.2e-44;
Matches 52; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 2 VQTVPLSRLFDHMLQAHRAHQLAIDTYQEFETYPKDKYSFLHDSQTSF 53
DB 27 VQTVPLSRLFDHMLQAHRAHQLAIDTYQEFETYPKDKYSFLHDSQTSF 78
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RESULT 4
B32435
Chorionamototropin-like protein precursor - human
C:Species: Homo sapiens (man)
C:Date: 29-Dec-1989 #sequence_revision 29-Dec-1989 #text_change 16-Jul-1999
C:Accession: B32435
R:Chen, E.Y.; Liao, Y.C.; Smith, D.H.; Barrera-Saldana, H.A.; Gelinas, R.E.; Seeburg,
Genomics 4, 479-497, 1989
A:Title: The human growth hormone locus: nucleotide sequence, biology, and evolution.
A:Reference number: A32435; MUID:89307277
A:Accession: B32435
A:Status: preliminary
A:Molecule type: DNA
A:Residues: 1-199 <CHE>
A:Cross-references: GB:J03071; NID:g183148; PIDN:AAA52550.1; PID:g183150
C:Superfamily: prolactin

Query Match 17.8%; Score 24; DB 2; Length 199;
Best Local Similarity 100.0%; Pred. No. 2.4e-16;
Matches 24; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 100 NNLVYDTSDDYHLLKLEEGIQ 123
DB 107 NNLVYDTSDDYHLLKLEEGIQ 130

RESULT 5
STHU
somatotropin 1 precursor [validated] - human
N:Alternate names: growth hormone 1; hGH-N; pituitary somatotropin
C:Contains: growth hormone 5K peptide; somatotropin 1, long form; somatotropin 1, sho
C:Species: Homo sapiens (man)
C:Date: 24-Apr-1984 #sequence_revision 10-Feb-1995 #text_change 08-Dec-2000
C:Accession: A93731; A32435; A93694; A94247; A90051; A93397; A93778; A91764; A90217;
R:DeNoto, F.M.; Moore, D.D.; Goodman, H.M.
Nucleic Acids Res. 9, 3719-3730, 1981
A:Title: Human growth hormone DNA sequence and mRNA structure: possible alternative s
A:Reference number: A93731; MUID:82014939
A:Accession: A93731
A:Molecule type: DNA
A:Residues: 1-217 <DEN>
A:Cross-references: GB:V00520
A:Note: the 20K short form somatotropin lacks residues 58-72 (32-46 in the active hor.
R:Chen, E.Y.; Liao, Y.C.; Smith, D.H.; Barrera-Saldana, H.A.; Gelinas, R.E.; Seeburg,
Genomics 4, 479-497, 1989
A:Title: The human growth hormone locus: nucleotide sequence, biology, and evolution.
A:Reference number: A32435; MUID:89307277
A:Accession: A32435
A:Molecule type: DNA
A:Residues: 1-217 <CHE>
A:Cross-references: GB:J03071; NID:g183148; PIDN:AAA52549.1; PID:g183149
R:Roskam, W.; Rougeon, F.
Nucleic Acids Res. 7, 305-320, 1979
A:Title: Molecular cloning and nucleotide sequence of the human growth hormone struct
A:Reference number: A93694; MUID:80034477
A:Accession: A93694
A:Molecule type: mRNA
A:Residues: 1-217 <ROS>
A:Cross-references: GB:V00519
A:Note: 35-Pro was also found
R:Martial, J.A.; Hallewell, R.A.; Baxter, J.D.; Goodman, H.M.
Science 205, 602-607, 1979
A:Title: Human growth hormone: complementary DNA cloning and expression in bacteria.
A:Reference number: A94247; MUID:79203293
A:Accession: A94247
A:Molecule type: mRNA
A:Residues: 1-217 <MAR>
R:Li, C.H.; Dixon, J.S.; Liu, W.K.
Arch. Biochem. Biophys. 133, 70-91, 1969
A:Title: Human pituitary growth hormone. XIX. The primary structure of the hormone.
A:Reference number: A90048; MUID:69289202
```

A:Contents: annotation  
R:Li, C.H.; Dixon, J.S.  
Arch. Biochem. Biophys. 146, 233-236, 1971  
A:Title: Human pituitary growth hormone. XXXII. The primary structure of the hormone: re  
A:Reference number: A90051; MUID:72143935  
A:Accession: A90051  
A:Molecule type: protein  
A:Residues: 27-94;96-217 <LIC>  
R:Niall, H.D.  
Nature New Biol. 230, 90-91, 1971  
A:Title: Revised primary structure for human growth hormone.  
A:Reference number: A93397; MUID:71139765  
A:Accession: A93397  
A:Molecule type: protein  
A:Residues: 27-51 <NTA>  
R:Niall, H.D.; Hogan, M.L.; Sauer, R.; Rosenblum, I.Y.; Greenwood, F.C.  
Proc. Natl. Acad. Sci. U.S.A. 68, 866-869, 1971  
A:Title: Sequences of pituitary and placental lactogenic and growth hormones: evolution  
A:Reference number: A93778; MUID:71153968  
A:Accession: A93778  
A:Molecule type: protein  
A:Residues: 119-120;157-159 <NI2>  
R:Niall, H.D.  
In Prolactin and Carcinogenesis, Proc. Fourth Tenovus Workshop Prolactin, Griffiths, K.,  
A:Title: The chemistry of the human lactogenic hormones.  
A:Reference number: A94427  
A:Contents: annotation; somatotropin revision  
R:Bewley, T.A.; Dixon, J.S.; Li, C.H.  
Int. J. Pept. Protein Res. 4, 281-287, 1972  
A:Title: Sequence comparison of human pituitary growth hormone, human chorionic somatoma  
A:Reference number: A91764; MUID:73092028  
A:Accession: A91764  
A:Molecule type: protein  
A:Residues: 27-217 <BEW>  
R:Lewis, U.J.; Bonevald, L.F.; Lewis, L.J.  
Biochem. Biophys. Res. Commun. 92, 511-516, 1980  
A:Title: The 20,000-dalton variant of human growth hormone: location of the amino acid  
A:Reference number: A90217; MUID:80130196  
A:Contents: somatotropin, 20K short variant  
A:Accession: A90217  
A:Molecule type: protein  
A:Residues: 46-57;73-80 <LEW>  
R:Chapman, G.E.; Rogers, K.M.; Brittain, T.; Bradshaw, R.A.; Bates, O.J.; Turner, C.; Ca  
J. Biol. Chem. 256, 2395-2401, 1981  
A:Title: The 20,000 molecular weight variant of human growth hormone. Preparation and so  
A:Reference number: A92311; MUID:81117361  
A:Contents: somatotropin, 20K short variant  
A:Accession: A92311  
A:Molecule type: protein  
A:Residues: 27-57;73-79 <CHA>  
R:Singh, R.N.P.; Seavey, B.K.; Lewis, L.J.; Lewis, U.J.  
J. Protein Chem. 2, 425-436, 1983  
A:Title: Human growth hormone peptide 1-43: isolation from pituitary glands.  
A:Reference number: A61466  
A:Accession: A61466  
A:Molecule type: protein  
A:Residues: 27-69 <STN>  
R:Robson, V.M.J.; Rae, I.D.; NG, F.  
Biol. Chem. Hoppe-Seyler 371, 423-431, 1990  
A:Title: Identification of the aspartimide structure in a previously-reported peptide.  
A:Reference number: S09685; MUID:90334745  
A:Accession: S09685  
A:Molecule type: protein  
A:Residues: 27-34; L, 36-47 <ROB>  
R:de Vos, A.M.; Ultsch, M.; Kossiakoff, A.A.  
Science 255, 306-312, 1992  
A:Title: Human growth hormone and extracellular domain of its receptor: crystal structu  
A:Reference number: A41728; MUID:92196577  
A:Contents: annotation; X-ray crystallography, 2.8 angstroms  
R:Gray, G.L.; Balridge, J.S.; McKeown, K.S.; Heyneker, H.L.; Chang, C.N.  
Gene 39, 247-254, 1985

A:Title: Periplasmic production of correctly processed human growth hormone in Escher  
A:Reference number: I41126; MUID:86137393  
A:Accession: I84549  
A:Status: preliminary; translated from GB/EMBL/DBDJ  
A:Molecule type: mRNA  
A:Residues: 1-26 <RES>  
A:Cross-references: GDB:119982; OMIM:139250  
A:Map position: 17q23.1-17q23.3  
A:Introns: 4/1; 57/3; 97/3; 152/3  
C:Superfamily: prolactin  
C:Keywords: alternative splicing; hormone; pituitary  
F:1-26/Domain: signal sequence #status predicted <SIG>  
F:27-217/Product: somatotropin 1, long form #status experimental <SOL>  
F:27-69/Product: growth hormone 5K peptide #status experimental <SKP>  
F:27-57,73-217/Product: somatotropin 1, short form #status experimental <SOS>  
F:79-191,208-215/Disulfide bonds: #status experimental  
A:Gene: GDB:GHI  
A:Cross-references: GDB:119982; OMIM:139250  
A:Map position: 17q23.1-17q23.3  
A:Introns: 4/1; 57/3; 97/3; 152/3  
C:Superfamily: prolactin  
C:Keywords: alternative splicing; hormone; pituitary  
F:1-26/Domain: signal sequence #status predicted <SIG>  
F:27-217/Product: somatotropin 1, long form #status experimental <SOL>  
F:27-69/Product: growth hormone 5K peptide #status experimental <SKP>  
F:27-57,73-217/Product: somatotropin 1, short form #status experimental <SOS>  
F:79-191,208-215/Disulfide bonds: #status experimental  
Query Match 16.3%; Score 22; DB 1; Length 217;  
Best Local Similarity 100.0%; Pred. No. 2.6e-14; Mismatches 0; Indels 0; Gaps 0;  
Matches 22; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 114 LKXLEEGTQTLGRLDGSPR 135  
|||||  
Db 139 LKXLEEGTQTLGRLDGSPR 160  
|||||  
RESULT 6  
I67410  
somatotropin - rhesus macaque  
N:Alternate names: growth hormone  
C:Species: Macaca mulatta (rhesus macaque)  
C:Date: 31-May-1996 #sequence\_revision 31-May-1996 #text\_change 16-Jul-1999  
C:Accession: I67410; A05094  
R:Golos, T.G.; Durning, M.; Fisher, J.M.; Fowler, P.D.  
Endocrinology 133, 1744-1752, 1993  
A:Title: Cloning of four growth hormone/chorionic somatomammotropin-related complemen  
A:Reference number: I53267; MUID:94008724  
A:Accession: I67410  
A:Status: translated from GB/EMBL/DBDJ  
A:Molecule type: mRNA  
A:Residues: 1-217 <RES>  
A:Cross-references: GB:L16556; NID:g293114; PIDN:AAA18842.1; PID:g293115  
R:Li, C.H.; Chung, D.; Lahm, H.W.; Stein, S.  
Arch. Biochem. Biophys. 245, 287-291, 1986  
A:Title: The primary structure of monkey pituitary growth hormone.  
A:Reference number: A05094; MUID:86129460  
A:Accession: A05094  
A:Molecule type: protein  
A:Residues: 27-99,'Q',101-178,'D',180-217 <LIC>  
A:Note: the monkey species is not identified in the reference  
R:Raben, M.S.  
Science 125, 883-884, 1957  
A:Title: Preparation of growth hormone from pituitaries of man and monkey.  
A:Reference number: A44774  
A:Contents: annotation; Identification of source organism  
C:Superfamily: prolactin  
Query Match 14.8%; Score 20; DB 2; Length 217;  
Best Local Similarity 100.0%; Pred. No. 2.6e-12;  
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 114 LKXLEEGTQTLGRLDGSPR 133  
|||||  
Db 139 LKXLEEGTQTLGRLDGSPR 158  
|||||

RESULT 7  
I67408  
chorionic somatomammotropin-2 - rhesus macaque (fragment)  
C:Species: Macaca mulatta (rhesus macaque)  
C:Date: 31-May-1996 #sequence\_revision 31-May-1996 #text\_change 16-Jul-1999  
C:Accession: I67408  
R:Golos, T.G.; Durning, M.; Fisher, J.M.; Fowler, P.D.  
Endocrinology 133, 1744-1752, 1993  
A:Title: Cloning of four growth hormone/chorionic somatomammotropin-related complementation  
A:Reference number: I53267; MUID:94008724  
A:Accession: I67408  
A:Status: preliminary; translated from GB/EMBL/DBJ  
A:Molecule type: mRNA  
A:Residues: 1-212 <RES>  
A:Cross-references: GB:L16553; NID:g293110; PIDN:AAAL18840.1; PID:g293111  
C:Superfamily: prolactin

Query Match 14.1%; Score 19; DB 2; Length 212;  
Best Local Similarity 100.0%; Pred. No. 2.7e-11;  
Matches 19; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 66 EETQOKSNLELLRISLLLI 84  
|||||  
DB 86 EETQOKSNLELLRISLLLI 104

RESULT 8  
I67409  
chorionic somatomammotropin-3 - rhesus macaque  
C:Species: Macaca mulatta (rhesus macaque)  
C:Date: 31-May-1996 #sequence\_revision 31-May-1996 #text\_change 16-Jul-1999  
C:Accession: I67409  
R:Golos, T.G.; Durning, M.; Fisher, J.M.; Fowler, P.D.  
Endocrinology 133, 1744-1752, 1993  
A:Title: Cloning of four growth hormone/chorionic somatomammotropin-related complementation  
A:Reference number: I53267; MUID:94008724  
A:Accession: I67409  
A:Status: preliminary; translated from GB/EMBL/DBJ  
A:Molecule type: mRNA  
A:Residues: 1-217 <RES>  
A:Cross-references: GB:L16554; NID:g293112; PIDN:AAAL18841.1; PID:g293113  
C:Superfamily: prolactin

Query Match 14.1%; Score 19; DB 2; Length 217;  
Best Local Similarity 100.0%; Pred. No. 2.7e-11;  
Matches 19; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 66 EETQOKSNLELLRISLLLI 84  
|||||  
DB 91 EETQOKSNLELLRISLLLI 109

RESULT 9  
I53267  
chorionic somatomammotropin-1 - rhesus macaque  
C:Species: Macaca mulatta (rhesus macaque)  
C:Date: 31-May-1996 #sequence\_revision 31-May-1996 #text\_change 16-Jul-1999  
C:Accession: I53267  
R:Golos, T.G.; Durning, M.; Fisher, J.M.; Fowler, P.D.  
Endocrinology 133, 1744-1752, 1993  
A:Title: Cloning of four growth hormone/chorionic somatomammotropin-related complementation  
A:Reference number: I53267; MUID:94008724  
A:Accession: I53267  
A:Status: preliminary; translated from GB/EMBL/DBJ  
A:Molecule type: mRNA  
A:Residues: 1-217 <RES>  
A:Cross-references: GB:L16552; NID:g293108; PIDN:AAAL18839.1; PID:g293109  
C:Superfamily: prolactin

Query Match 14.1%; Score 19; DB 2; Length 217;

Best Local Similarity 100.0%; Pred. No. 2.7e-11;  
Matches 19; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 66 EETQOKSNLELLRISLLLI 84  
|||||  
DB 91 EETQOKSNLELLRISLLLI 109

RESULT 10  
I67411  
somatotropin - rhesus macaque  
N:Alternate names: growth hormone  
C:Species: Macaca mulatta (rhesus macaque)  
C:Date: 31-May-1996 #sequence\_revision 31-May-1996 #text\_change 16-Jul-1999  
C:Accession: I67411  
R:Golos, T.G.; Durning, M.; Fisher, J.M.; Fowler, P.D.  
Endocrinology 133, 1744-1752, 1993  
A:Title: Cloning of four growth hormone/chorionic somatomammotropin-related complementation  
A:Reference number: I53267; MUID:94008724  
A:Accession: I67411  
A:Status: preliminary; translated from GB/EMBL/DBJ  
A:Molecule type: mRNA  
A:Residues: 1-217 <RES>  
A:Cross-references: GB:L16555; NID:g293116; PIDN:AAA20180.1; PID:g293117  
C:Superfamily: prolactin

Query Match 13.3%; Score 18; DB 2; Length 217;  
Best Local Similarity 100.0%; Pred. No. 2.7e-10;  
Matches 18; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 118 LEEGIQTLMGRLEDGSPR 135  
|||||  
DB 143 LEEGIQTLMGRLEDGSPR 160

RESULT 11  
STHUV  
somatotropin 2 precursor - human  
N:Alternate names: growth hormone 2; growth hormone variant; hGH-V; placental somatotropin  
C:Species: Homo sapiens (man)  
C:Date: 17-Dec-1982 #sequence\_revision 10-Feb-1995 #text\_change 21-Jul-2000  
C:Accession: D32435; B28072; A01511; I52104; A50711  
R:Chen, E.Y.; Liao, Y.C.; Smith, D.H.; Barrera-Saldana, H.A.; Gelinas, R.E.; Seeburg, Genomics 4, 479-497, 1989  
A:Title: The human growth hormone locus: nucleotide sequence, biology, and evolution.  
A:Reference number: A32435; MUID:89307277  
A:Accession: D32435  
A:Molecule type: DNA  
A:Residues: 1-217 <CHE>  
A:Cross-references: GB:J03071; NID:g183148; PIDN:AAA52552.1; PID:g183152  
R:Cooke, N.E.; Ray, J.; Emery, J.G.; Liebhaver, S.A.  
J. Biol. Chem. 263, 9001-9006, 1988  
A:Title: Two distinct species of human growth hormone-variant mRNA in the human place  
A:Reference number: A92725; MUID:88243769  
A:Accession: B28072  
A:Molecule type: mRNA  
A:Residues: 1-217 <COO>  
R:Seeburg, P.H.  
DNA 1, 239-249, 1982  
A:Title: The human growth hormone gene family: nucleotide sequences show recent diver  
A:Reference number: A01511; MUID:83182010  
A:Accession: A01511  
A:Molecule type: DNA  
R:Igout, A.; Scippo, M.L.; Franckenne, F.; Hennen, G.  
Arch. Int. Physiol. Biochim. 96, 63-67, 1988  
A:Title: Cloning and nucleotide sequence of placental hGH-V cDNA.  
A:Reference number: I52104; MUID:89024984  
A:Accession: I52104  
A:Status: preliminary; translated from GB/EMBL/DBJ  
A:Molecule type: mRNA

A:Residues: 1-217 <IGO>  
A:Cross-references: GB:M38451; NID:g183179; PIDN:AAA35891.1; PID:g183180  
R:Frankenne, F.; Scippo, M.L.; Van Beunnen, J.; Igout, A.; Hennen, G.  
J. Clin. Endocrinol. Metab. 71, 15-18, 1990  
A:Title: Identification of placental human growth hormone as the growth hormone-V gene  
A:Reference number: A60711; MUID:90317018  
A:Accession: A60711  
A:Molecule type: protein  
A:Residues: 27-44;46-57 <FRA>  
A:Experimental source: tissue placenta  
A:Note: partial glycosylation was demonstrated by lectin binding  
C:Comment: This gene is expressed by the placenta.  
C:Genetics:  
A:Gene: GDB:GH2  
A:Cross-references: GDB:119983; OMIM:139240  
A:Map position: 17q22-17q24  
A:Introns: 4/1; 57/3; 97/3; 152/3  
C:Superfamily: prolactin  
C:Keywords: alternative splicing; glycoprotein; hormone; placenta  
F:1-26/Domain: signal sequence #status predicted <SIG>  
F:27-217/Product: somatotropin 2, long splice form #status predicted <SOL>  
F:27-57.73-217/Product: somatotropin 2, short splice form #status predicted <SOS>  
F:79-191,208-215/Disulfide bonds: #status predicted  
F:166/Binding site: carbohydrate (Asn) (covalent) #status predicted

Query Match 12.6%; Score 17; DB 1; Length 217;  
Best Local Similarity 100.0%; Pred. No. 2.7e-09;  
Matches 17; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 68 TQQKSNELELRISLLLI 84  
|||||  
Db 93 TQQKSNELELRISLLLI 109

RESULT 12  
STHUV2  
Somatotropin 2 precursor, splice form 2 - human  
N:Alternate names: growth hormone variant-2; placental somatotropin form 2  
C:Species: Homo sapiens (man)  
C:Date: 30-Sep-1989 #sequence\_revision 10-Feb-1995 #text\_change 02-Sep-1997  
C:Accession: A28072  
R:Cooke, N.E.; Ray, J.; Emery, J.G.; Liebhauer, S.A.  
J. Biol. Chem. 263, 9001-9006, 1988  
A:Title: Two distinct species of human growth hormone-variant mRNA in the human placenta  
A:Reference number: A92725; MUID:88243769  
A:Accession: A28072  
A:Molecule type: mRNA  
A:Residues: 1-256 <COO>  
A:Note: an alternative splice junction for intron 4 is used  
C:Genetics:  
A:Gene: GDB:GH2  
A:Cross-references: GDB:119983; OMIM:139240  
A:Map position: 17q22-17q24  
A:Introns: 4/1; 57/3; 97/3; 152/3  
C:Superfamily: prolactin  
C:Keywords: alternative splicing; hormone; placenta  
F:1-26/Domain: signal sequence #status predicted <SIG>  
F:27-256/Product: somatotropin 2 splice form 2 #status predicted <MAT>

Query Match 12.6%; Score 17; DB 1; Length 256;  
Best Local Similarity 100.0%; Pred. No. 3.1e-09;  
Matches 17; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 68 TQQKSNELELRISLLLI 84  
|||||  
Db 93 TQQKSNELELRISLLLI 109

RESULT 13  
STBO  
somatotropin precursor [validated] - bovine

N:Alternate names: growth hormone  
C:Species: Bos primigenius taurus (cattle)  
C:Date: 23-Oct-1981 #sequence\_revision 23-Oct-1981 #text\_change 15-Sep-2000  
C:Accession: I45900; JCL1316; A92283; I45898; I45901; A36506; A91396; A90187; A91208;  
R:Gordon, D.F.; Quick, D.P.; Erwin, C.R.; Donelson, J.E.; Maurer, R.A.  
Mol. Cell. Endocrinol. 33, 81-95, 1983  
A:Title: Nucleotide sequence of the bovine growth hormone chromosomal gene.  
A:Reference number: I45900; MUID:84058733  
A:Accession: I45900  
A:Status: translated from GB/EMBL/DBDJ  
A:Molecule type: DNA  
A:Residues: 1-217 <GOR>  
A:Cross-references: GB:M57764; NID:g163091; PIDN:AAA30544.1; PID:g163092  
R:Li, B.L.; Liang, Z.H.; Yang, X.Y.; Gan, K.D.; Zhou, B.; Li, Q.L.; Tang, J.Y.  
Acta Biochim. Biophys. Sin. 26, 505-512, 1994  
A:Title: Synthesis, cloning and high-level expression of the bovine growth hormone ge  
A:Reference number: JCL1316  
A:Accession: JCL1316  
A:Molecule type: DNA  
A:Residues: 'M',27-148,'C',150-193,'R',195-217 <LIB>  
R:Miller, W.L.; Martial, J.A.; Baxter, J.D.  
J. Biol. Chem. 255, 7521-7524, 1980  
A:Title: Molecular cloning of DNA complementary to bovine growth hormone mRNA.  
A:Reference number: A92283; MUID:80249494  
A:Accession: A92283  
A:Molecule type: mRNA  
A:Residues: 1-217 <MIL>  
A:Cross-references: GB:V00111; NID:g399; PIDN:CAA23445.1; PID:g400  
R:Seeburg, P.H.; Slas, S.; Adelman, J.P.; de Boer, H.A.; Hayflick, J.; Jhurani, P.; G  
DNA 2, 37-45, 1983  
A:Title: Efficient bacterial expression of bovine and porcine growth hormones.  
A:Reference number: I45898; MUID:83209123  
A:Accession: I45898  
A:Status: preliminary; translated from GB/EMBL/DBDJ  
A:Molecule type: mRNA  
A:Residues: 1-217 <SEE>  
A:Cross-references: GB:M27325; NID:g163089; PIDN:AAA30543.1; PID:g163090  
R:George, H.J.; L'Italien, J.J.; Pilacinski, W.P.; Glassman, D.L.; Krzyzek, R.A.  
DNA 4, 273-281, 1985  
A:Title: High-level expression in Escherichia coli of biologically active bovine grow  
A:Reference number: I45901; MUID:86004063  
A:Accession: I45901  
A:Status: preliminary; translated from GB/EMBL/DBDJ  
A:Molecule type: mRNA  
A:Residues: 'M',27-49 <GEO>  
A:Cross-references: GB:M11558; NID:g163093; PIDN:AAA30545.1; PID:g163094  
R:Wood, D.C.; Salsgiver, W.J.; Kasser, T.R.; Lange, G.W.; Rowold, E.; Violand, B.N.;  
rbow, J.R.; Bild, G.; Krivi, G.G.  
J. Biol. Chem. 264, 14741-14747, 1989  
A:Title: Purification and characterization of pituitary bovine somatotropin.  
A:Reference number: A36506; MUID:89359269  
A:Accession: A36506  
A:Status: preliminary  
A:Molecule type: protein  
A:Residues: 27-34;152,'V',154-159 <WOO>  
R:Wallis, M.  
FEBS Lett. 35, 11-14, 1973  
A:Title: The primary structure of bovine growth hormone.  
A:Reference number: A91396; MUID:74028758  
A:Accession: A91396  
A:Molecule type: protein  
A:Residues: 27-217 <WAL>  
A:Note: 153-val was found in one-third of the molecules  
R:Graf, L.; Li, C.H.  
Biochem. Biophys. Res. Commun. 56, 168-176, 1974  
A:Title: On the primary structure of pituitary bovine growth hormone.  
A:Reference number: A90187; MUID:74146429  
A:Accession: A90187  
A:Molecule type: protein  
A:Residues: 91-96;104-121 <GRA>  
R:Santome, J.A.; Dellacha, J.M.; Paladini, A.C.; Pena, C.; Biscoglio, M.J.; Daurat, S  
Eur. J. Biochem. 37, 164-170, 1973  
A:Title: Primary structure of bovine growth hormone.



A:Reference number: A91208; MUID:73249153  
A:Accession: A91208  
A:Molecule type: protein  
A:Residues: 27-94, 'E', 96-109, 'SQ', 112-113, 'Q', 115, 'G', 118-119, 121-193, 'N', 195-217 <SAN>  
R:Seavey, B.K.; Singh, R.N.P.; Lewis, U.J.; Geschwind, I.I.  
Biochem. Biophys. Res. Commun. 43, 189-195, 1971  
A:Title: Bovine growth hormone: evidence for two allelic forms.  
A:Reference number: A90171; MUID:71207803  
A:Contents: annotation  
A>Note: analysis of tryptic peptides from individual animals confirms the existence of a n erythrocyte membranes similar to that of human somatotropin  
R:Yamasaki, N.; Shimanaka, J.; Sonnenburg, M.  
J. Biol. Chem. 250, 2510-2514, 1975  
A:Title: Studies on the common active site of growth hormone. Revision of the amino acid  
A:Reference number: A92175; MUID:75133461  
A:Contents: annotation  
A>Note: a fragment corresponding to residues 122-159 in the sequence shown had growth-pr  
n erythrocyte membranes similar to that of human somatotropin  
R:Carliacci, L.; Chou, K.C.; Maggiora, G.M.  
submitted to the Brookhaven Protein Data Bank, February 1991  
A:Reference number: A50827; PDB:1BST  
A:Contents: annotation; theoretical model, residues 27-217  
R:Carliacci, L.; Chou, K.C.; Maggiora, G.M.  
Biochemistry 30, 4389-4398, 1991  
A:Title: A heuristic approach to predicting the tertiary structure of bovine somatotropin  
A:Reference number: A30630; MUID:91214979  
A:Contents: annotation; theoretical model  
C:Genetics:  
A:Gene: GH1  
A:Introns: 5/1; 58/3; 97/3; 151/3  
C:Superfamily: prolactin  
F:1-26/Domain: signal sequence #status predicted <SIG>  
F:27-217/Product: somatotropin #status experimental <MAT>  
F:79-190, 207-215/Disulfide bonds: #status experimental

Query Match 8.1%; Score 11; DB 1; Length 217;  
Best Local Similarity 100.0%; Pred. No. 0.0028;  
Matches 11; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 74 LELLRLSLLLI 84  
|||||  
Db 99 LELLRLSLLLI 109

RESULT 14  
STSH  
somatotropin precursor - sheep  
N:Alternate names: growth hormone  
C:Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)  
C>Date: 30-Sep-1991 #sequence.revision 30-Sep-1991 #text.change 18-Jun-1999  
C:Accession: S02225; S04969; A33228; A33229; I47081; A01515  
R:Orlani, J.M.; O'Mahoney, J.V.; Brandon, M.R.  
Nucleic Acids Res. 16, 9046, 1988  
A:Title: Cloning and sequencing of the ovine growth hormone gene.  
A:Reference number: S02225; MUID:89016583  
A:Accession: S02225  
A:Molecule type: DNA  
A:Residues: 1-217 <ORI>  
A:Cross-references: EMBL:X12546; NID:gl1792; PIDN:CAA31063.1; PID:gl1793  
R:Warwick, J.M.; Wallis, O.C.; Wallis, M.  
Biochim. Biophys. Acta 1008, 247-250, 1989  
A:Title: Cloning, sequence and expression in Escherichia coli of cDNA for ovine pregrowth  
A:Reference number: S04969; MUID:89287334  
A:Accession: S04969  
A:Molecule type: mRNA  
A:Residues: 1-217 <WAR>  
A:Cross-references: GB:X15976; NID:9609665; PIDN:CAA34098.1; PID:g609666  
R:Li, C.H.; Gordon, D.; Knorr, J.  
Arch. Biochem. Biophys. 156, 493-508, 1973  
A:Title: The primary structure of sheep pituitary growth hormone.  
A:Reference number: A90055; MUID:73220070  
A:Accession: A33228

A:Molecule type: protein  
A:Residues: 27-124, 'D', 126-217 <LIC>  
R:Bellair, J.T.  
Biochem. Biophys. Res. Commun. 46, 1128-1134, 1972  
A:Title: Ovine growth hormone sequence of the C-terminal 68 amino acids.  
A:Reference number: A90177; MUID:72134042  
A:Accession: A33229  
A:Molecule type: protein  
A:Residues: 150-217 <BEL>  
R:Byrne, C.R.; Wilson, B.W.; Ward, K.A.  
Aust. J. Biol. Sci. 40, 459-468, 1987  
A:Title: The isolation and characterisation of the ovine growth hormone gene.  
A:Reference number: I47081; MUID:88268619  
A:Accession: I47081  
A:Status: preliminary; translated from GB/EMBL/DBDJ  
A:Molecule type: DNA  
A:Residues: 1-88, 'S', 90-133, 'L', 135-217 <BYR>  
A:Cross-references: GB:M37310; NID:gl65886; PIDN:AAA31527.1; PID:gl65887  
C:Genetics:  
A:Introns: 5/1; 58/3; 97/3; 151/3  
C:Superfamily: prolactin  
C:Keywords: hormone; pituitary  
F:1-26/Domain: signal sequence #status predicted <SIG>  
F:27-217/Product: somatotropin #status experimental <MAT>  
F:79-190, 207-215/Disulfide bonds: #status experimental

Query Match 8.1%; Score 11; DB 1; Length 217;  
Best Local Similarity 100.0%; Pred. No. 0.0028;  
Matches 11; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 74 LELLRLSLLLI 84  
|||||  
Db 99 LELLRLSLLLI 109

RESULT 15  
STGT  
somatotropin precursor - goat  
N:Alternate names: growth hormone  
C:Species: Capra aegagrus hircus (domestic goat)  
C>Date: 30-Sep-1990 #sequence.revision 30-Sep-1990 #text.change 16-Jun-2000  
C:Accession: S00321; JU0031; S00681; JT0480  
R:Yamano, Y.; Oyabayashi, K.; Okuno, M.; Yato, M.; Kioka, N.; Manabe, E.; Hashi, H.;  
FEBS Lett. 228, 301-304, 1988  
A:Title: Cloning and sequencing of cDNA that encodes goat growth hormone.  
A:Reference number: S00321; MUID:88137627  
A:Accession: S00321  
A:Molecule type: mRNA  
A:Residues: 1-217 <YAM>  
A:Cross-references: EMBL:Y00767; NID:g975; PIDN:CAA68736.1; PID:g976  
R:Kioka, N.; Manabe, E.; Abe, M.; Hashi, H.; Yato, M.; Okuno, M.; Yamano, Y.; Sakai,  
Agric. Biol. Chem. 53, 1583-1587, 1989  
A:Title: Cloning and sequencing of goat growth hormone gene.  
A:Reference number: JU0031  
A:Accession: JU0031  
A:Molecule type: DNA  
A:Residues: 1-217 <KIO>  
A:Cross-references: GB:D00476; NID:g217664; PIDN:BAA00368.1; PID:g217665  
R:Yato, M.; Yamano, Y.; Oyabayashi, K.; Okuno, M.; Kioka, N.; Manabe, E.; Hashi, H.;  
Nucleic Acids Res. 16, 3578, 1988  
A:Title: Nucleotide sequence of the growth hormone gene cDNA from goat Capra hircus L  
A:Reference number: S00681; MUID:88233947  
A:Accession: S00681  
A:Molecule type: mRNA  
A:Residues: 1-217 <KIO>  
A:Cross-references: GB:X07035; NID:g973; PIDN:CAA30083.1; PID:g974  
A:Experimental source: subspecies Tokara  
C:Genetics:  
A:Introns: 5/1; 58/3; 97/3; 151/3  
C:Superfamily: prolactin  
C:Keywords: anterior pituitary; growth factor; hormone

F:1-26/Domain: signal sequence #status predicted <SIG>  
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F:79-190,207-215/Disulfide bonds: #status predicted

Query Match 8.18; Score 11; DB 1; Length 217;  
Best Local Similarity 100.0%; Pred. No. 0.0028;  
Matches 11; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 74 LELLRISLLLI 84  
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DB 99 LELLRISLLLI 109

Search completed: September 25, 2002, 10:06:17  
Job time: 155 sec

GenCore version 4.5  
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OM protein - protein search, using sw model

Run on: September 25, 2002, 10:05:52 ; Search time 11.93 Seconds  
(without alignments)  
436.151 Million cell updates/sec

Title: US-09-819-094-18

Perfect score: 135

Sequence: 1 MVQTVPLSRFLDHAMLAQHR.....KDLEGIQTLMGRLDGSPR 135

Scoring table: OLIGO

Gapop 60.0 , Gapext 60.0

Searched: 105224 seqs, 38719550 residues

Word size : 0

Total number of hits satisfying chosen parameters: 105224

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Listing first 1000 summaries

Database : SwissProt\_40:\*

Pred. No. is the number of results predicted by chance to have a  
score greater than or equal to the score of the result being printed,  
and is derived by analysis of the total score distribution.

#### SUMMARIES

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2	22	16.3	217	1 SOMA_HUMAN	P01241 homo sapien
3	21	15.6	217	1 SOMA_CALTA	Q9gmb3 callithrix
4	20	14.8	217	1 SOMA_MACMU	P33093 macaca mula
5	16	11.9	217	1 SOMV_HUMAN	P01242 homo sapien
6	16	11.9	256	1 SOMV_HUMAN	P09587 homo sapien
7	15	11.1	217	1 SOMA_SAIIB	P58343 salmieri bol
8	12	8.9	217	1 SOMV_MACMU	Q07370 macaca mula
9	11	8.1	217	1 SOMA_BOVIN	P01246 bos taurus
10	11	8.1	217	1 SOMA_BUBBU	O18938 bubalus bub
11	11	8.1	217	1 SOMA_CEREL	P36437 cervus elap
12	11	8.1	217	1 SOMA_SHEEP	P01247 ovis aries
13	9	6.7	190	1 SOMA_BALBO	P33092 balaenopter
14	9	6.7	190	1 SOMA_LAMPA	P37885 lama guanac
15	9	6.7	190	1 SOMA_LOXAF	P20392 loxodonta a
16	9	6.7	190	1 SOMA_VULVU	P10766 vulpes vulp
17	9	6.7	216	1 SOMA_ANAPL	P11228 anas platyr
18	9	6.7	216	1 SOMA_CANFA	P33711 canis famil
19	9	6.7	216	1 SOMA_CHICK	P08998 gallus gall
20	9	6.7	216	1 SOMA_FELCA	P46404 felis silve
21	9	6.7	216	1 SOMA_MELGA	P22077 meleagris g
22	9	6.7	216	1 SOMA_MESAU	P37886 mesocricetu
23	9	6.7	216	1 SOMA_MOUSE	P06880 mus musculu
24	9	6.7	216	1 SOMA_MUSVI	P19795 mustela vis
25	9	6.7	216	1 SOMA_PIG	P01248 sus scrofa
26	9	6.7	216	1 SOMA_RABIT	P46407 oryctolagus
27	9	6.7	216	1 SOMA_RAT	P01244 rattus norv
28	9	6.7	217	1 SOMA_GALSE	Q9gkal galago sene
29	9	6.7	217	1 SOMA_NYCPY	Q9gmb2 nycticebus
30	9	6.7	217	1 SOMA_STRCA	Q9pwb3 struthio ca
31	8	5.9	190	1 SOM1_ACIGU	P26773 acipenser g
32	8	5.9	190	1 SOM2_ACIGU	P26774 acipenser g
33	8	5.9	675	1 KSC5_ECOLI	P42217 escherichia

1	LSPA_BORBU	1	170	5	2	7	34
1	SOMA_CRONO	1	190	5	2	7	35
1	SOMA_CHEMY	1	191	5	2	7	36
1	SOMA_ANGJA	1	209	5	2	7	37
1	SOMA_MONDO	1	215	5	2	7	38
1	SOMA_TRIVU	1	215	5	2	7	39
1	SOMA_HORSE	1	216	5	2	7	40
1	PHAE_PHAVU	1	275	5	2	7	41
1	FLBI_RHIME	1	394	5	2	7	42
1	FLB2_RHIME	1	395	5	2	7	43
1	FLD2_RHIME	1	395	5	2	7	44
1	FLD1_RHIME	1	401	5	2	7	45
1	T230_CAEEL	1	403	5	2	7	46
1	CAR3_HUMAN	1	536	5	2	7	47
1	SAT1_HUMAN	1	763	5	2	7	48
1	SAT1_MOUSE	1	764	5	2	7	49
1	SYL_CAMJE	1	809	5	2	7	50
1	SYG_CHLPN	1	1010	5	2	7	51
1	Y120_NPVAC	1	82	4	4	6	52
1	VG80_BPML5	1	92	4	4	6	53
1	GATC_AQAE	1	94	4	4	6	54
1	RBFA_RICCN	1	120	4	4	6	55
1	YB8F_YEAST	1	123	4	4	6	56
1	YB12_MYCPN	1	130	4	4	6	57
1	MYP2_BOVIN	1	131	4	4	6	58
1	MYP2_HUMAN	1	131	4	4	6	59
1	MYP2_RABIT	1	131	4	4	6	60
1	VNX5_YEAST	1	143	4	4	6	61
1	PTFA_BACSU	1	146	4	4	6	62
1	YMGW_YEAST	1	150	4	4	6	63
1	COAD_PSEAE	1	159	4	4	6	64
1	COAT_SHMV	1	162	4	4	6	65
1	XYLY_PSEPU	1	162	4	4	6	66
1	HXA9_CHICK	1	169	4	4	6	67
1	ILIX_MOUSE	1	178	4	4	6	68
1	ILIX_RAT	1	178	4	4	6	69
1	IPYR_LEGPN	1	178	4	4	6	70
1	IPYR_RHORU	1	179	4	4	6	71
1	SOMA_PRIGL	1	183	4	4	6	72
1	APL3_MANSE	1	189	4	4	6	73
1	MI25_ARATH	1	192	4	4	6	74
1	MI25_WHEAT	1	192	4	4	6	75
1	YF91_MYCTU	1	193	4	4	6	76
1	T2D9_DROME	1	196	4	4	6	77
1	MI25_ORYSA	1	197	4	4	6	78
1	MI25_TOBAC	1	198	4	4	6	79
1	PGD_RAT	1	198	4	4	6	80
1	VS11_ROTBU	1	198	4	4	6	81
1	VS11_ROTTH	1	198	4	4	6	82
1	VS11_ROTTH	1	198	4	4	6	83
1	VS11_ROTTH	1	198	4	4	6	84
1	VS11_ROTTH	1	198	4	4	6	85
1	VS11_ROTTH	1	198	4	4	6	86
1	VS11_ROTTH	1	198	4	4	6	87
1	UREG_HELPY	1	199	4	4	6	88
1	UREG_HELPY	1	199	4	4	6	89
1	VS11_ROTTH	1	200	4	4	6	90
1	RUVA_CHLPN	1	207	4	4	6	91
1	SOMB_XENLA	1	208	4	4	6	92
1	CD7_MOUSE	1	210	4	4	6	93
1	RB17_HUMAN	1	212	4	4	6	94
1	YOUN_CAEEL	1	213	4	4	6	95
1	SOMA_XENLA	1	214	4	4	6	96
1	CAS1_RABIT	1	215	4	4	6	97
1	YOPE_YEREN	1	219	4	4	6	98
1	YOPE_YERPE	1	219	4	4	6	99
1	YOPE_YERPS	1	219	4	4	6	100
1	SCAB_SHEEP	1	221	4	4	6	101
1	Y045_METJA	1	221	4	4	6	102
1	AFQ1_STRCO	1	225	4	4	6	103
1	CBIO_SALTY	1	225	4	4	6	104
1	YCBL_BACSU	1	226	4	4	6	105
1	VIB8_AGRT6	1	230	4	4	6	106
1	VIB8_AGRT9	1	230	4	4	6	106

O51425	borrelia bu
P55755	crocodylus
P34005	chelonina my
P08899	anguilla ja
Q96160	monodelphis
O62754	trichosurus
P01245	equus cabal
P05088	phaseolus v
Q03842	rhizobium m
P13119	rhizobium m
Q52942	rhizobium m
P08330	rhizobium m
Q09474	caenorhabdi
Q9h257	homo sapien
Q01826	homo sapien
Q60611	mus musculu
Q9pkn3	campylobact
Q926w0	chlamydia p
P41673	autographa
Q05295	mycobacteri
O67904	aquifex aeo
Q92114	rickettsia
P38357	saccharomyc
P75450	mycoplasma
P02690	bos taurus
P02691	oryctolagus
P02689	homo sapien
P53856	saccharomyc
P26379	bacillus su
Q03379	saccharomyc
Q916d1	pseudomonas
P03581	sunn-hemp m
P23100	pseudomonas
Q98924	gallus gall
P25085	mus musculu
P25086	rattus norv
O34955	legionella
Q9rgql	rhodospiril
P34006	phionace gl
P13276	manduca sex
Q04613	arabidopsis
P23513	tritium ae
O06599	mycobacteri
P49906	drosofila
Q00058	oryza sativ
P09003	nicotiana t
Q35543	rattus norv
O04515	bovine rota
P23047	human rotav
P18036	human rotav
P23048	human rotav
P17467	rabbit rota
P11202	simian l1 r
Q9zmz7	helicobacte
Q09066	helicobacte
P18037	human rotav
Q927t4	chlamydia p
P12856	xenopus lae
Q0283	mus musculu
P50h07	homo sapien
P34658	caenorhabdi
P12855	xenopus lae
P09115	oryctolagus
P31492	versinia en
P31493	versinia pe
P08008	versinia ps
O62816	ovis aries
Q60353	methanococc
Q04942	streptomyce
Q05598	salmonella
P42244	bacillus su
P09781	agrobacteri
P05357	agrobacteri

107	6	4.4	233	1	ATTB_HYACE	P01512	hyalophora	180	6	4.4	541	1	PCCB_RAT	P07633	rattus norv
108	6	4.4	240	1	SWS2_MOUSE	Q9d4j1	mus musculus	181	6	4.4	541	1	YDCG_ECOLI	P40120	escherichia
109	6	4.4	244	1	ADC_CLOAB	P23670	clostridium	182	6	4.4	544	1	GRKA_BACSU	P49939	bacillus su
110	6	4.4	261	1	ZNUB_ECOLI	P39832	escherichia	183	6	4.4	544	1	MLH1_HORVU	O49873	hordium vul
111	6	4.4	265	1	MURI_PEDPE	Q08783	pediococcus	184	6	4.4	564	1	VA55_VACCC	P21073	vaccinia vi
112	6	4.4	271	1	ALLR_ECOLI	P77734	escherichia	185	6	4.4	564	1	VA55_VACCV	P24768	vaccinia vi
113	6	4.4	272	1	Y177_BACHD	Q9kgc7	bacillus ha	186	6	4.4	593	1	KPYA_TOBAC	Q40545	nicotiana t
114	6	4.4	290	1	GSPC_AERHY	P45790	aeromonas h	187	6	4.4	602	1	HOXF_ALCEU	P22317	alcaligenes
115	6	4.4	290	1	GSPC_AERSA	Q55702	aeromonas s	188	6	4.4	608	1	ATOS_ECOLI	Q06067	escherichia
116	6	4.4	290	1	Y229_SYNY3	Q47722	synecocyst	189	6	4.4	611	1	HBS1_YEAST	P32769	saccharomyc
117	6	4.4	297	1	KHSE_AQUAE	O67332	aquifex aeo	190	6	4.4	612	1	ADFL_CANAL	P46589	candida alb
118	6	4.4	303	1	PPX1_PARTE	P49576	paramecium	191	6	4.4	624	1	NIFA_AZOLI	P54929	azospirillum
119	6	4.4	306	1	SDSB_PSES9	P52886	pseudomonas	192	6	4.4	625	1	NIFA_AZOBR	P30667	azospirillum
120	6	4.4	310	1	CSBS_SULAC	O54089	sulfolobus	193	6	4.4	630	1	GIDA_PSEPU	P25756	pseudomonas
121	6	4.4	312	1	TRUB_VIBCH	Q9ku78	vibrio chol	194	6	4.4	634	1	SELB_MOOTH	Q46455	moorella th
122	6	4.4	316	1	T2BB_BACSU	P33562	bacillus su	195	6	4.4	638	1	SCAB_MOUSE	Q9wu38	mus musculus
123	6	4.4	326	1	Y883_PYRHO	O58613	pyrococcus	196	6	4.4	638	1	SCAB_RAT	P37090	rattus norv
124	6	4.4	328	1	YIAO_HAEIN	P44992	haemophilus	197	6	4.4	640	1	SCAB_HUMAN	P51168	homo sapien
125	6	4.4	334	1	MRPL_CABEL	Q93459	caenorhabdi	198	6	4.4	641	1	SCAB_RABIT	O97742	oryctolagus
126	6	4.4	335	1	Y676_METJA	O58089	methanococc	199	6	4.4	662	1	YAB8_YEAST	P39722	saccharomyc
127	6	4.4	339	1	ENDA_HALVO	O07118	halobacteri	200	6	4.4	664	1	UL47_HSV1F	P08313	herpes simp
128	6	4.4	344	1	FLIM_TREPA	P74927	treponema p	201	6	4.4	666	1	POL_FWVD	P09523	figwort mos
129	6	4.4	345	1	GRA4_TOXGO	Q27002	toxoplasma	202	6	4.4	670	1	YAYF_SCHPO	O10222	schizosacch
130	6	4.4	353	1	RTCA_AERPE	Q9ves0	aeropyrum p	203	6	4.4	674	1	CFP4_SCHPO	P87312	schizosacch
131	6	4.4	355	1	LAV1_PHYPO	P14725	physarum po	204	6	4.4	676	1	ICP0_HSVBJ	P29128	bovine herp
132	6	4.4	356	1	VP7_BRD	P35935	broadhaven	205	6	4.4	676	1	ICP0_HSVBK	P29836	bovine herp
133	6	4.4	359	1	PST_CRIGR	Q64690	cricketulus	206	6	4.4	693	1	UL47_HSV11	P10231	herpes simp
134	6	4.4	359	1	PST_HUMAN	Q92187	homo sapien	207	6	4.4	693	1	HXIA_WAIZE	P46605	zea mays (m
135	6	4.4	359	1	PST_MOUSE	O64692	mus musculus	208	6	4.4	719	1	ETRI_ARATH	P49333	arabidopsis
136	6	4.4	359	1	RF1_CHLMU	Q9pl16	chlamydia m	209	6	4.4	738	1	YAB8_SCHPO	O09772	schizosacch
137	6	4.4	362	1	NU1C_ORYSA	P12124	oryza sativ	210	6	4.4	768	1	YAB8_SCHPO	O09772	schizosacch
138	6	4.4	369	1	YOK3_CABEL	P91478	caenorhabdi	211	6	4.4	780	1	VACL_RABIT	O93034	homo sapien
139	6	4.4	376	1	FUT1_MOUSE	Q09160	mus musculus	212	6	4.4	780	1	VACL_RAT	Q23425	oryctolagus
140	6	4.4	376	1	FUT1_RAT	Q10980	rattus norv	213	6	4.4	792	1	RIR1_HUMAN	Q9jj31	rattus norv
141	6	4.4	376	1	MID2_YEAST	P36027	saccharomyc	214	6	4.4	792	1	RIR1_MOUSE	P23921	homo sapien
142	6	4.4	379	1	CYB_LOXAF	P24958	loxodonta a	215	6	4.4	794	1	RIR1_BRARE	P07742	mus musculus
143	6	4.4	384	1	CYNX_ECOLI	P17583	escherichia	216	6	4.4	795	1	GCR_RAT	P79732	brachydanio
144	6	4.4	404	1	YBR3_YEAST	P38083	saccharomyc	217	6	4.4	795	1	PSCS_HUMAN	P06536	rattus norv
145	6	4.4	405	1	ARRS_PIG	P79260	sus scrofa	218	6	4.4	795	1	PSCS_MOUSE	P54886	h delta 1-p
146	6	4.4	407	1	COAT_BBV	P04329	black beetl	219	6	4.4	796	1	YH04_YEAST	Q9z110	m delta 1-p
147	6	4.4	407	1	COAT_FHV	P12870	flock house	220	6	4.4	801	1	BRD2_HUMAN	P38888	saccharomyc
148	6	4.4	411	1	FKB3_YEAST	P38911	saccharomyc	221	6	4.4	802	1	PMT2_SCHPO	P25440	homo sapien
149	6	4.4	418	1	PGK_EUPCR	O02608	euplotes cr	222	6	4.4	804	1	RIR1_PLAFG	O42832	schizosacch
150	6	4.4	422	1	YN23_YEAST	P53851	saccharomyc	223	6	4.4	806	1	RIR1_PLAF4	P50647	plasmodium
151	6	4.4	425	1	Y655_ARCFU	O29602	archaeoglob	224	6	4.4	806	1	SYL_HELPJ	P50648	plasmodium
152	6	4.4	429	1	URAA_ECOLI	P33780	escherichia	225	6	4.4	806	1	SYL_HELPJ	Q9z163	helicobacte
153	6	4.4	431	1	PUR8_BACSU	P12047	bacillus su	226	6	4.4	828	1	NAPA_ECOLI	P56457	helicobacte
154	6	4.4	441	1	COAT_SOCMV	P15627	soybean chl	227	6	4.4	834	1	MSH5_HUMAN	P39337	escherichia
155	6	4.4	451	1	GAGV_DROME	P10405	drosophila	228	6	4.4	840	1	UREA_CANEN	O43196	homo sapien
156	6	4.4	455	1	TBD_MOUSE	Q9rik7	mus musculus	229	6	4.4	843	1	EP2_DROME	P07374	canavalia e
157	6	4.4	461	1	PUCG_RHOCA	P23462	rhodobacter	230	6	4.4	844	1	RRPO_IPNVS	P13060	drosophila
158	6	4.4	463	1	YKAA_BACFI	P30267	bacillus fi	231	6	4.4	845	1	RRPO_IPNVJ	P22174	infectious
159	6	4.4	467	1	ISPE_SCHPO	P40903	schizosacch	232	6	4.4	851	1	EF2_CAEEL	P22173	infectious
160	6	4.4	467	1	VL2_HP33	P06418	human papil	233	6	4.4	857	1	EF2_CHICK	P29691	caenorhabdi
161	6	4.4	470	1	PEPV_LACDL	P45494	lactobacill	234	6	4.4	857	1	EF2_CRIGR	Q90705	gallus gall
162	6	4.4	472	1	VL2_HPV58	P26538	human papil	235	6	4.4	857	1	EF2_HUMAN	P09445	cricketulus
163	6	4.4	478	1	TIG_AQUAE	O67358	aquifex aeo	236	6	4.4	857	1	EF2_MESAU	P13639	homo sapien
164	6	4.4	486	1	YDBE_SCHPO	Q10367	schizosacch	237	6	4.4	857	1	EF2_MOUSE	P05086	mesocricetu
165	6	4.4	486	1	YDBE_SCHPO	P54215	drosophila	238	6	4.4	857	1	EF2_RAT	P58252	mus musculus
166	6	4.4	494	1	AMYA_DROMA	P51548	drosophila	239	6	4.4	906	1	NUOG_BUCAT	P05197	rattus norv
167	6	4.4	497	1	SILS_SALTY	Q9zhd4	salmonella	240	6	4.4	917	1	HXX2_HUMAN	P57257	buchnera ap
168	6	4.4	505	1	SRK1_SPOLA	P42686	spongilla l	241	6	4.4	917	1	HXX2_MOUSE	P52789	homo sapien
169	6	4.4	507	1	IRX3_MOUSE	P81067	mus musculus	242	6	4.4	917	1	HXX2_RAT	O08528	mus musculus
170	6	4.4	509	1	VP64_NPVOP	P13625	orgyia pseu	243	6	4.4	920	1	OGT1_HUMAN	P27881	rattus norv
171	6	4.4	509	1	VP67_NPVCF	P41717	choristoneu	244	6	4.4	937	1	DBS_RAT	O15294	homo sapien
172	6	4.4	512	1	VP67_NPVAC	P17501	autographa	245	6	4.4	953	1	YA42_HUMAN	Q63406	rattus norv
173	6	4.4	515	1	MAD3_YEAST	P47074	saccharomyc	246	6	4.4	954	1	DRP2_HUMAN	Q9upv9	homo sapien
174	6	4.4	520	1	HDAC_DROME	Q94517	drosophila	247	6	4.4	956	1	RRPO_SBMV	Q13474	homo sapien
175	6	4.4	533	1	MLO_HORVU	P93766	hordium vul	248	6	4.4	964	1	YOY1_CABEL	P21405	southern be
176	6	4.4	538	1	NRFA_HAEIN	P45017	haemophilus	249	6	4.4	976	1	SCP1_HUMAN	Q09560	caenorhabdi
177	6	4.4	539	1	PCCB_HUMAN	P05166	homo sapien	250	6	4.4	989	1	SMB2_MESAU	Q15431	homo sapien
178	6	4.4	539	1	PCCB_PIG	P79384	sus scrofa	251	6	4.4	993	1	SMB2_MOUSE	Q60560	mesocricetu
179	6	4.4	541	1	AIDB_ECOLI	P33224	escherichia	252	6	4.4	994	1	SYLM_NEUCR	P40694	mus musculus
														P51581	neurospora

253	6	4.4	1036	1	OCT1_RAT	P56558	rattus norv	326	5	3.7	85	1	SCAS_MESMA	Q9uac9	mesobuthus
254	6	4.4	1073	1	RAG1_ONCMY	Q91187	oncorhynchu	327	5	3.7	86	1	SPAQ_SHIFL	P40705	shigella fl
255	6	4.4	1081	1	GALY_YEAST	P19659	saccharomyc	328	5	3.7	87	1	Y174_BURCE	P24580	burkholderi
256	6	4.4	1137	1	MSH3_HUMAN	P20585	homo sapien	329	5	3.7	89	1	CYB_BRANA	P49390	brassica na
257	6	4.4	1149	1	DBS_MOUSE	Q64096	mus musculu	330	5	3.7	89	1	YVAP_VAGCC	P20525	vaccinia vi
258	6	4.4	1163	1	Y222_HUMAN	Q92618	homo sapien	331	5	3.7	91	1	E310_ADE05	P06497	human adeno
259	6	4.4	1176	1	HMDH_PHYBL	Q12649	phycomyces	332	5	3.7	92	1	RR19_ODOS1	P49506	odontella s
260	6	4.4	1176	1	VPS8_YEAST	P39702	saccharomyc	333	5	3.7	92	1	VGLJ_HSV11	P06480	herpes simp
261	6	4.4	1224	1	DYNA_CHICK	P35458	gallus gall	334	5	3.7	93	1	RR20_ODOS1	P49507	odontella s
262	6	4.4	1226	1	KF4A_XENLA	Q91784	xenopus lae	335	5	3.7	93	1	Y060_ARCFU	O30176	archaeoglob
263	6	4.4	1258	1	YS00_ANASP	O8ytc2	anabaena sp	336	5	3.7	93	1	YSC1_THEFL	P25124	thermus aqu
264	6	4.4	1271	1	Y338_MYCCE	P47580	mycoplasma	337	5	3.7	95	1	S10E_HUMAN	P25815	homo sapien
265	6	4.4	1301	1	RPOB_CHLVU	P36299	chlorella v	338	5	3.7	95	1	VFP7_SPKA	P23332	swinepox vi
266	6	4.4	1317	1	RPOD_SYNY3	P73334	synechocyst	339	5	3.7	96	1	VPR_HVISC	P05951	human immun
267	6	4.4	1333	1	VGR1_MOUSE	P35969	mus musculu	340	5	3.7	96	1	YQEI_BACSU	P54454	bacillus su
268	6	4.4	1336	1	VGR1_RAT	P53767	rattus norv	341	5	3.7	98	1	S113_BOVIN	P79342	bos taurus
269	6	4.4	1338	1	VGR1_HUMAN	P17948	homo sapien	342	5	3.7	98	1	S113_HUMAN	Q99584	homo sapien
270	6	4.4	1360	1	GLI1_XENLA	Q91690	xenopus lae	343	5	3.7	98	1	S113_MOUSE	P97352	mus musculu
271	6	4.4	1395	1	IF4G_HUMAN	Q04637	homo sapien	344	5	3.7	98	1	SZ10_HUMAN	P02778	homo sapien
272	6	4.4	1398	1	PUS_PYRFU	P72186	pyrococcus	345	5	3.7	99	1	FANB_ECOLI	P07105	escherichia
273	6	4.4	1402	1	IF4G_RABIT	P41110	oryctolagus	346	5	3.7	99	1	Y420_HAEIN	P43995	haemophilus
274	6	4.4	1411	1	YM42_YEAST	Q03214	saccharomyc	347	5	3.7	100	1	VIN2_BPT4	P03719	bacterioph
275	6	4.4	1429	1	EXPA_DROME	O07436	drosophila	348	5	3.7	100	1	YBO2_YEAST	P38223	saccharomyc
276	6	4.4	1451	1	A2M2_MOUSE	P28666	mus musculu	349	5	3.7	101	1	YBK8_YEAST	P38161	saccharomyc
277	6	4.4	1476	1	A2M1_MOUSE	P28665	mus musculu	350	5	3.7	102	1	L08_LYCES	Q43495	lycopersico
278	6	4.4	1477	1	AL13_RAT	P14046	rattus norv	351	5	3.7	102	1	VE7_PAPVE	P11332	european el
279	6	4.4	1649	1	YG44_SCHPO	O60179	schizosacch	352	5	3.7	103	1	CHLB_BAZTR	P37844	bazzania tr
280	6	4.4	1716	1	RPA1_RAT	O54889	rattus norv	353	5	3.7	103	1	PTLA_STAAM	P02909	staphylococ
281	6	4.4	1756	1	YCF1_PINTH	P41647	pinus thunb	354	5	3.7	104	1	CHLB_PICMA	P37853	picea maria
282	6	4.4	1786	1	LMB1_HUMAN	P07942	homo sapien	355	5	3.7	104	1	PTLA_STRMU	P26426	streptococc
283	6	4.4	1812	1	BRC1_MOUSE	P48754	mus musculu	356	5	3.7	104	1	YMF8_YEAST	Q04964	saccharomyc
284	6	4.4	1864	1	VGNB_RCMV	P35930	red clover	357	5	3.7	105	1	CPA2_CANPG	P81576	cancer pagu
285	6	4.4	1884	1	RRPO_ACLSP	P27738	apple chlor	358	5	3.7	105	1	YOPN_BACSU	O34369	bacillus su
286	6	4.4	1885	1	RRPO_ACLSP	P54891	apple chlor	359	5	3.7	106	1	FLIE_BACSU	P24502	bacillus su
287	6	4.4	2052	1	FYVL_MOUSE	Q921t6	mus musculu	360	5	3.7	106	1	YG76_MYCPN	P75116	mycoplasma
288	6	4.4	2265	1	FYVL_BOVIN	P07589	bos taurus	361	5	3.7	107	1	CPCF_MASLA	P29734	mastigoclad
289	6	4.4	2291	1	RRPB_BEV	P18458	berne virus	362	5	3.7	107	1	DPD4_HUMAN	Q9hc08	homo sapien
290	6	4.4	2386	1	FINC_HUMAN	P02751	homo sapien	363	5	3.7	107	1	DPD4_MOUSE	Q9cwp8	mus musculu
291	6	4.4	2477	1	FINC_RAT	P04937	rattus norv	364	5	3.7	107	1	TBCA_BOVIN	P48427	bos taurus
292	6	4.4	2733	1	RRPB_CVMA5	P16342	murine coro	365	5	3.7	107	1	TBCA_HUMAN	O75347	homo sapien
293	6	4.4	3023	1	POIG_TVIVV	P09814	t genome po	366	5	3.7	107	1	TBCA_MOUSE	P48428	mus musculu
294	6	4.4	3027	1	POIG_PYFV1	O05057	parsnip yel	367	5	3.7	107	1	TBCA_RABIT	P80594	oryctolagus
295	6	4.4	3144	1	YPL3_YEAST	Q07878	saccharomyc	368	5	3.7	108	1	PHSM_KLEPN	P07094	klebsiella
296	6	4.4	3418	1	BRC2_HUMAN	P51587	homo sapien	369	5	3.7	108	1	YC20_PORPU	P51214	porphyra pu
297	5	3.7	27	1	DBH1_BIFLO	P17615	bifidobacte	370	5	3.7	109	1	V42_BPT3	P20316	bacterioph
298	5	3.7	34	1	Z33B_HUMAN	O06731	homo sapien	371	5	3.7	110	1	INS_CAVPO	P01329	cavia porce
299	5	3.7	35	1	Y320_BORBU	O51299	borrelia bu	372	5	3.7	110	1	RL3E_METJA	P54061	methanococc
300	5	3.7	40	1	SAUV_PHYSA	P01144	phyllomedus	373	5	3.7	111	1	YG12_BACHD	O9kcf9	bacillus ha
301	5	3.7	44	1	Y135_HELPY	O24948	helicobacte	374	5	3.7	113	1	GP57_BPSP1	O48411	bacterioph
302	5	3.7	48	1	ATP8_CANPA	P17345	candida par	375	5	3.7	113	1	RL22_BACSU	P42060	bacillus su
303	5	3.7	55	1	ATP8_STRPU	P15997	strongyloce	376	5	3.7	113	1	RL24_RICPR	Q9zcr6	rickettsia
304	5	3.7	55	1	ATPG_METMA	O60189	methanosarc	377	5	3.7	113	1	YR7C_ECOLI	Q9utc9	schizosacch
305	5	3.7	60	1	RL30_THETH	P74909	thermus aqu	378	5	3.7	114	1	PFDD_SCHPO	P17171	bacterioph
306	5	3.7	62	1	Y205_METJA	O60262	methanococc	379	5	3.7	114	1	VG40_BPT4	P23259	scylliorhinu
307	5	3.7	63	1	Y149_HAEIN	P43953	haemophilus	380	5	3.7	115	1	ANFC_SCYCA	P55208	triakis scy
308	5	3.7	65	1	YWBE_BACSU	P39588	bacillus su	381	5	3.7	115	1	ANFC_TRISC	P03897	homo sapien
309	5	3.7	68	1	AT19_YEAST	P81451	saccharomyc	382	5	3.7	115	1	NU3M_HUMAN	Q01254	yersinia en
310	5	3.7	69	1	NS2C_HUMAN	Q14961	homo sapien	383	5	3.7	115	1	YSCM_YEREN	Q00930	yersinia pe
311	5	3.7	69	1	RL29_LACLA	O9cdx0	lactococcus	384	5	3.7	116	1	YSCM_YERPE	O29115	archaeoglob
312	5	3.7	69	1	Y132_TREPA	O83168	treponema p	385	5	3.7	116	1	PFDB_ARCFU	O57589	methanococc
313	5	3.7	70	1	UBIL_CAEBR	Q07371	caenorhabdi	386	5	3.7	116	1	Y125_METJA	P28217	styela plic
314	5	3.7	70	1	UBIL_CAEEL	Q07372	caenorhabdi	387	5	3.7	117	1	PT25_STYPL	P34769	astasia lon
315	5	3.7	71	1	BD02_MOUSE	P80220	mus musculu	388	5	3.7	117	1	RK20_ASTLO	O25532	manduca sex
316	5	3.7	73	1	GP60_BPSPL	O48414	bacterioph	389	5	3.7	117	1	VATG_MANSE	P26847	marchantia
317	5	3.7	73	1	YAUE_SCHPO	O10167	schizosacch	390	5	3.7	118	1	NU3M_MARPO	P18630	oenothera b
318	5	3.7	73	1	YOF6_TTVL	P19281	thermoprote	391	5	3.7	118	1	NU3M_OENBE	Q9y899	gallus gall
319	5	3.7	74	1	BRZF_RANES	P40842	rana esculu	392	5	3.7	119	1	EY43_CHICK	O53159	rhodobacter
320	5	3.7	75	1	CSRA_BACHD	Q9K6V8	bacillus ha	393	5	3.7	119	1	HIS3_RHOSH	P05677	synecococc
321	5	3.7	76	1	ACP_LEUMU	P80920	leucothrix	394	5	3.7	119	1	Y128_SYNP6	P58574	anabaena sp
322	5	3.7	76	1	NIKM_HUMAN	O43677	homo sapien	395	5	3.7	119	1	Y459_ANASP	P29711	anabaena va
323	5	3.7	76	1	YS24_BORBU	P70845	borrelia bu	396	5	3.7	119	1	Y459_ANAVA	O32227	bacillus su
324	5	3.7	82	1	Y235_METJA	O57687	methanococc	397	5	3.7	120	1	Y069_ARCFU	O30167	archaeoglob
325	5	3.7	83	1	CYC6_PAVLU	P00107	pavlova lut	398	5	3.7	120	1			

399	5	3.7	120	1	YDHD_HAEIN	P45085 haemophilus	472	5	3.7	149	1	CRAA_ANAPL	O12984 anas platyr
400	5	3.7	121	1	KV40_HUMAN	P06312 homo sapien	473	5	3.7	149	1	CRAA_COLL1	O12988 columba liv
401	5	3.7	121	1	KR43_MOUSE	Q922d0 mus musculu	474	5	3.7	149	1	CRAA_EUDEL	O90497 eudromia el
402	5	3.7	121	1	YG47_YEAST	P53302 saccharomyc	475	5	3.7	149	1	CRAA_TRASC	Q91517 trachemys s
403	5	3.7	121	1	YH10_AOUAE	O66536 aquifex ao	476	5	3.7	149	1	UREE_LACFE	Q9x525 lactobacill
404	5	3.7	122	1	YMIT_YEAST	Q03880 saccharomyc	477	5	3.7	149	1	YZ73_CAEEL	Q12997 caenorhabd
405	5	3.7	123	1	YAS4_MYCPN	P75060 mycoplasma	478	5	3.7	150	1	FLG6_BACSU	P24501 bacillus su
406	5	3.7	123	1	YL34_AOUAE	O67892 aquifex ao	479	5	3.7	150	1	RNK6_AOTTR	O46528 aotus trivi
407	5	3.7	125	1	ACPS_ECOLI	P24224 escherichia	480	5	3.7	150	1	RNK6_CRAAE	O46534 cercopithec
408	5	3.7	125	1	GRF6_MOUSE	P45028 mus musculu	481	5	3.7	150	1	RNK6_GORGO	O46532 gorilla gor
409	5	3.7	126	1	RL26_SCHPO	P78946 schizosacch	482	5	3.7	150	1	RNK6_HUMAN	Q93091 homo sapien
410	5	3.7	126	1	RNK6_PIG	P81649 sus scrofa	483	5	3.7	150	1	RNK6_MACMU	O46533 macaca mula
411	5	3.7	126	1	VEEG_RAT	O35757 rattus norv	484	5	3.7	150	1	RNK6_PANTR	O46525 pan troglod
412	5	3.7	127	1	RS12_THEMA	Q9x1j3 thermotoga	485	5	3.7	150	1	RNK6_PAPHA	O46527 papio hamad
413	5	3.7	127	1	UR2_RANRI	P33715 rana ridibu	486	5	3.7	150	1	RNK6_PONPY	O46526 pongo pygma
414	5	3.7	128	1	RT11_PROWI	P46746 prototheca	487	5	3.7	150	1	RNK6_SAGOE	O46530 saguinus oe
415	5	3.7	128	1	Y192_RICPR	Q92dx2 rickettsia	488	5	3.7	150	1	RNK6_SALSC	O46529 salmiri sci
416	5	3.7	129	1	RS1A_HUMAN	P39027 homo sapien	489	5	3.7	152	1	Y16D_BFT4	P22317 bacterioph
417	5	3.7	129	1	UREA_SOYBN	P08298 glycine max	490	5	3.7	154	1	HMEN_TRIGR	P09532 tripneustes
418	5	3.7	130	1	BL_TENMO	Q27017 tenebrio mo	491	5	3.7	154	1	NT3_CEREL	O95150 cervus elap
419	5	3.7	130	1	RS17_DROME	P17704 drosophila	492	5	3.7	154	1	PBP3_DROME	P54193 drosophila
420	5	3.7	130	1	RS8_METVA	P14038 methanococc	493	5	3.7	155	1	ITRF_MAIZE	P01088 zea mays (m
421	5	3.7	130	1	VG75_HSVB	P28985 equine herp	494	5	3.7	155	1	NUDH_HELPI	O25826 helicobacte
422	5	3.7	131	1	FABB_MOUSE	P51880 mus musculu	495	5	3.7	155	1	RP86_YEAST	P20435 saccharomyc
423	5	3.7	131	1	FABB_RAT	P55051 rattus norv	496	5	3.7	156	1	CCMH_PSEFL	P52226 pseudomonas
424	5	3.7	131	1	LYGE_HUMAN	Q16553 homo sapien	497	5	3.7	156	1	FRI_LISIN	P80725 listeria in
425	5	3.7	131	1	SODN_STRCO	P80735 streptomyce	498	5	3.7	157	1	COAT_SPMV	O86993 satellite p
426	5	3.7	131	1	SODN_STRSO	P80734 streptomyce	499	5	3.7	157	1	COAT_SSADV	O88305 satellite s
427	5	3.7	132	1	RL7B_SCHPO	Q9p7j6 schizosacch	500	5	3.7	157	1	HES2_RAT	P35429 rattus norv
428	5	3.7	132	1	TLBP_MOUSE	O08716 mus musculu	501	5	3.7	157	1	NUDH_HELPI	Q9z1z8 helicobacte
429	5	3.7	132	1	TLBP_RAT	P55053 rattus norv	502	5	3.7	157	1	PR04_LYCES	O04108 lycopersico
430	5	3.7	133	1	KV4B_HUMAN	P06313 homo sapien	503	5	3.7	159	1	PR06_LYCES	P04284 lycopersico
431	5	3.7	133	1	NIKR_SULSO	Q9ux49 sulfolobus	504	5	3.7	159	1	Y758_METJA	Q58168 methanococc
432	5	3.7	133	1	POP8_YEAST	P38208 saccharomyc	505	5	3.7	161	1	RNKD_PONPY	P47784 pongo pygma
433	5	3.7	133	1	YW23_CAEEL	Q11093 caenorhabdi	506	5	3.7	161	1	RPO8_VACCC	P21034 vaccinia vi
434	5	3.7	134	1	AL15_BLOTA	Q96870 blomia trop	507	5	3.7	161	1	RPO8_VACCV	P04310 vaccinia vi
435	5	3.7	134	1	CYB_DRYNI	O03713 dryomys nit	508	5	3.7	161	1	RPO8_VAVR	P33058 variola vir
436	5	3.7	134	1	CYB_MUSAV	P92651 muscardinus	509	5	3.7	161	1	YEP7_YEAST	P40043 saccharomyc
437	5	3.7	134	1	CYB_PITTSU	O78761 pitymys sub	510	5	3.7	162	1	YB94_SCHPO	O43003 schizosacch
438	5	3.7	134	1	KV4C_HUMAN	P06314 homo sapien	511	5	3.7	163	1	DSBI_PSEAE	P21482 pseudomonas
439	5	3.7	134	1	NUOA_BUCAI	P57252 buchnera ap	512	5	3.7	163	1	NU1M_DROAI	P51926 drosophila
440	5	3.7	135	1	FABE_MOUSE	O05816 mus musculu	513	5	3.7	163	1	NU1M_DROAL	P51927 drosophila
441	5	3.7	135	1	FABE_RAT	P55053 rattus norv	514	5	3.7	163	1	NU1M_DROGU	P51931 drosophila
442	5	3.7	135	1	IF2B_METTH	O27797 methanobact	515	5	3.7	163	1	NU1M_DROMD	P51932 drosophila
443	5	3.7	136	1	YGHC_ECOLI	O46835 escherichia	516	5	3.7	163	1	NU1M_DROMI	P51933 drosophila
444	5	3.7	137	1	INL2_DROME	Q9vt51 drosophila	517	5	3.7	163	1	PBPI_ANTPE	P51933 drosophila
445	5	3.7	138	1	RBS_ANTSP	P25458 antithamnlo	518	5	3.7	163	1	PBP_ANTPO	Q17077 antheraea p
446	5	3.7	138	1	Y337_MYCGE	P47579 mycoplasma	519	5	3.7	163	1	V239_FOMPV	P20797 antheraea p
447	5	3.7	138	1	YJCT_YEAST	P47063 saccharomyc	520	5	3.7	163	1	YAG5_SCHPO	P14371 fowlpox vir
448	5	3.7	138	1	YJGD_ECOLI	P37163 escherichia	521	5	3.7	163	1	YG31_AQUAE	Q09869 schizosacch
449	5	3.7	138	1	YJGD_SALTY	Q08019 salmonella	522	5	3.7	164	1	EBSC_ENTFA	O67553 aquifex ao
450	5	3.7	138	1	YMBT_YEAST	Q03554 saccharomyc	523	5	3.7	164	1	PTSN_HAEIN	P36922 enterococcu
451	5	3.7	140	1	BIRS_MOUSE	O70201 mus musculu	524	5	3.7	164	1	VAT_FWMD	P45072 haemophilus
452	5	3.7	140	1	ZG49_XENLA	P18724 xenopus lae	525	5	3.7	164	1	YIF7_YEAST	P09521 figwort mos
453	5	3.7	142	1	BIRS_HUMAN	O15392 homo sapien	526	5	3.7	164	1	YP98_MYCTU	O50188 saccharomyc
454	5	3.7	142	1	BIRS_RAT	Q91hy7 rattus norv	527	5	3.7	165	1	LKTC_PASSP	Q50623 mycobacteri
455	5	3.7	142	1	Y4KQ_RHISN	P55535 rhizobium s	528	5	3.7	165	1	RS4Y_MACFU	P55124 pasteurrella
456	5	3.7	143	1	NI12_MOUSE	O91189 mus musculu	529	5	3.7	165	1	RS5_CHLPN	P79183 macaca fusc
457	5	3.7	143	1	Y124_ECOLI	P13779 escherichia	530	5	3.7	165	1	Y447_MYCGA	Q9z7s3 chlamydia p
458	5	3.7	144	1	COPE_MOUSE	O89079 mus musculu	531	5	3.7	165	1	YU10_BORBU	P53660 mycoplasma
459	5	3.7	144	1	MERR_PSEAE	P06688 pseudomonas	532	5	3.7	165	1	ARGR_MYCLE	O50843 borrelia bu
460	5	3.7	144	1	NAPA_HELPI	P43313 helicobacte	533	5	3.7	167	1	FTN_HELPY	P57992 mycobacteri
461	5	3.7	144	1	Y250_STAAM	P52080 staphylococ	534	5	3.7	167	1	FTN_HELPY	P52093 helicobacte
462	5	3.7	145	1	YA54_AOUAE	O66611 aquifex ao	535	5	3.7	167	1	LKCL_PASHA	P16533 pasteurrella
463	5	3.7	147	1	GCSH_AERPE	Q9ydg2 aeropyrum p	536	5	3.7	167	1	LKCB_PASHA	P55121 pasteurrella
464	5	3.7	147	1	RL15_LACLA	P58121 lactococcus	537	5	3.7	167	1	NU6M_MXAGL	Q9g2w7 myxine glut
465	5	3.7	147	1	YFJS_ECOLI	O52982 escherichia	538	5	3.7	167	1	PAPE_ECOLI	P08408 escherichia
466	5	3.7	147	1	YSMA_BACSU	P11469 bacillus su	539	5	3.7	167	1	PRSF_ECOLI	P24187 escherichia
467	5	3.7	148	1	PFDA_PYRAB	Q9uyi4 pyrococcus	540	5	3.7	168	1	ILVH_METTH	O27492 methanobact
468	5	3.7	148	1	PFDA_PYRHO	O58263 pyrococcus	541	5	3.7	168	1	MBP_RABIT	P25274 oryctolagus
469	5	3.7	148	1	YLL2_EBV	P03199 epstein-bar	542	5	3.7	168	1	NU6M_DIDMA	P41315 didelphis m
470	5	3.7	148	1	YLL2_EBV8	Q07285 epstein-bar	543	5	3.7	168	1	TCCTP_SCHPO	O10344 schizosacch
471	5	3.7	148	1	YORI_HSVBS	Q08104 bovine herp	544	5	3.7	170	1	ARGR_MYCTU	P94992 mycobacteri

545 1 CRAA\_BRAVA 170 3.7 P02487 bradypus va 618 5  
546 1 CRAA\_CHOHO 170 3.7 P02486 choleopus h 619 5  
547 1 CRAA\_TAMME 170 3.7 P02485 tamandua me 620 5  
548 1 DEF\_PASMU 170 3.7 P57948 pasteurella 621 5  
549 1 NSG2\_MOUSE 171 3.7 P47759 mus musculus 622 5  
550 1 SDG2\_AQUAE 171 3.7 O66602 aquifex aeo 623 5  
551 1 CRAA\_MACMU 172 3.7 P02488 macaca mula 624 5  
552 1 CRAA\_ALLMI 173 3.7 P06904 alligator m 625 5  
553 1 CRAA\_ARTJA 173 3.7 P02482 artibeus ja 626 5  
554 1 CRAA\_ASTFA 173 3.7 O93591 astyanax fa 627 5  
555 1 CRAA\_BALAC 173 3.7 P02474 balaenopter 628 5  
556 1 CRAA\_BOVIN 173 3.7 P02470 bos taurus 629 5  
557 1 CRAA\_CAMDR 173 3.7 P02472 camelus dro 630 5  
558 1 CRAA\_CANPA 173 3.7 P02473 canis famli 631 5  
559 1 CRAA\_CAVPO 173 3.7 P02491 cavia porce 632 5  
560 1 CRAA\_CERSI 173 3.7 P02479 ceratotheri 633 5  
561 1 CRAA\_CHICK 173 3.7 P02504 gallus gall 634 5  
562 1 CRAA\_DIDMA 173 3.7 P02503 didelphis m 635 5  
563 1 CRAA\_EULFU 173 3.7 P02494 eulemur ful 636 5  
564 1 CRAA\_GIRCA 173 3.7 P02471 giraffa cam 637 5  
565 1 CRAA\_HORSE 173 3.7 P02478 equus cabal 638 5  
566 1 CRAA\_HUMAN 173 3.7 P02489 homo sapien 639 5  
567 1 CRAA\_LOXAF 173 3.7 P02498 loxodonta a 640 5  
568 1 CRAA\_MACRU 173 3.7 P02502 macropus ru 641 5  
569 1 CRAA\_MANJA 173 3.7 P02484 manis javan 642 5  
570 1 CRAA\_MOUSE 173 3.7 P02490 mus musculu 643 5  
571 1 CRAA\_MUSVI 173 3.7 P02483 mustela vis 644 5  
572 1 CRAA\_OCHPR 173 3.7 P02492 ochotona pr 645 5  
573 1 CRAA\_ORYAF 173 3.7 P02501 orycteropus 646 5  
574 1 CRAA\_PERPO 173 3.7 P02495 perodicticu 647 5  
575 1 CRAA\_PHOPH 173 3.7 P02475 phocoenoid 648 5  
576 1 CRAA\_PIG 173 3.7 P02477 sus scrofa 649 5  
577 1 CRAA\_PROCA 173 3.7 P02499 procavia ca 650 5  
578 1 CRAA\_PTEPO 173 3.7 P82531 pteropus po 651 5  
579 1 CRAA\_RABIT 173 3.7 P02493 oryctolagus 652 5  
580 1 CRAA\_RHEAM 173 3.7 P02505 rhea americ 653 5  
581 1 CRAA\_SPAEH 173 3.7 Q64211 spalax leuc 654 5  
582 1 CRAA\_TAPIN 173 3.7 P02476 tapirus ind 655 5  
583 1 CRAA\_TUPTE 173 3.7 P02506 tupianabis 656 5  
584 1 CRAA\_URSUR 173 3.7 P02480 ursus ursin 657 5  
585 1 CRAA\_ZALCA 173 3.7 P02481 zalophus ca 658 5  
586 1 CRAA\_MOUSE 173 3.7 P04345 mus musculu 659 5  
587 1 CRGA\_RAT 173 3.7 P10065 rattus norv 660 5  
588 1 CRGC\_MOUSE 173 3.7 O61597 mus musculu 661 5  
589 1 CRGC\_RAT 173 3.7 P02529 rattus norv 662 5  
590 1 OMPH\_CHLMU 173 3.7 Q9pk12 chlamydia m 663 5  
591 1 PSAL\_MASLA 173 3.7 O31126 mastigoclad 664 5  
592 1 CRGB\_MOUSE 174 3.7 P04344 mus musculu 665 5  
593 1 CRGB\_RAT 174 3.7 P10066 rattus norv 666 5  
594 1 GRPE\_METH 174 3.7 O27350 methanobact 667 5  
595 1 HUNB\_DROMU 174 3.7 O46250 drosophila 668 5  
596 1 MCA3\_CRIGR 174 3.7 O43324 homo sapien 669 5  
597 1 MCA3\_HUMAN 174 3.7 P06019 bacteriopho 670 5  
598 1 R9C1\_LPMU 174 3.7 Q58320 methanococc 671 5  
599 1 Y910\_METJA 174 3.7 P02510 bos taurus 672 5  
600 1 CRAB\_BOVIN 175 3.7 P02511 homo sapien 673 5  
601 1 CRAB\_HUMAN 175 3.7 P05811 mesocricetu 674 5  
602 1 CRAB\_MESAU 175 3.7 P23927 mus musculu 675 5  
603 1 CRAB\_MOUSE 175 3.7 P41316 oryctolagus 676 5  
604 1 CRAB\_RABIT 175 3.7 P23928 rattus norv 677 5  
605 1 CRAB\_RAT 175 3.7 Q03011 proteus mir 678 5  
606 1 MRPA\_PROMI 175 3.7 O30233 archaeoglob 679 5  
607 1 Y002\_ARCFU 175 3.7 Q57875 methanococc 680 5  
608 1 Y433\_METJA 175 3.7 Q36644 plecotus ra 681 5  
609 1 CYB\_PLEA 176 3.7 P54586 bacillus su 682 5  
610 1 YHCB\_BACSU 176 3.7 P02509 squalus aca 683 5  
611 1 CRAA\_SQUAC 177 3.7 O18999 equus cabal 684 5  
612 1 ILIX\_HORSE 177 3.7 P26890 oryctolagus 685 5  
613 1 ILIX\_RABIT 177 3.7 Q44679 corynebacte 686 5  
614 1 PUR6\_CORAM 177 3.7 Q03339 rinderpest 687 5  
615 1 VNCS\_RINDR 177 3.7 O9pjv8 chlamydia m 688 5  
616 1 ISPF\_CHLMU 178 3.7 O28533 archaeoglob 689 5  
617 1 PYRE\_ARCFU 178 3.7 690 5

1 Y561\_CHLPN 178 3.7  
1 YC96\_HAEIN 178 3.7  
1 14P\_BOVIN 179 3.7  
1 GRPE\_LACIA 179 3.7  
1 GRPE\_LALC 179 3.7  
1 YC61\_SYNY3 179 3.7  
1 ARF1\_CHLRE 179 3.7  
1 EIBS\_ADES7 180 3.7  
1 RGS8\_HUMAN 180 3.7  
1 RGS8\_RAT 180 3.7  
1 YJ01\_YEAST 180 3.7  
1 EU02\_CHLPS 181 3.7  
1 YW22\_YEAST 181 3.7  
1 EU01\_CHLPS 182 3.7  
1 RELX\_HORSE 182 3.7  
1 YGFA\_ECOLI 182 3.7  
1 REGA\_RHOSU 183 3.7  
1 RRF\_MYCGE 183 3.7  
1 UBC6\_ARATH 183 3.7  
1 REGA\_RHOC 184 3.7  
1 REGA\_RHOSH 184 3.7  
1 LEC\_VICVI 185 3.7  
1 RELX\_MOUSE 185 3.7  
1 RRF\_LACLA 185 3.7  
1 US10\_HCMVA 185 3.7  
1 YK46\_AQUAE 185 3.7  
1 YXAK\_BACSU 185 3.7  
1 AFOK\_BACSU 186 3.7  
1 YXND\_BACSU 187 3.7  
1 RER1\_YEAST 188 3.7  
1 RIMM\_DEIRA 188 3.7  
1 INA7\_HUMAN 189 3.7  
1 INAF\_HUMAN 189 3.7  
1 PAAD\_NEIMA 189 3.7  
1 PAAD\_NEIMB 189 3.7  
1 YF26\_CAEEL 189 3.7  
1 YIWC\_CAEEL 189 3.7  
1 PTH\_YEAST 190 3.7  
1 SOMA\_PAROL 190 3.7  
1 KITH\_STRGC 191 3.7  
1 Y096\_HAEIN 191 3.7  
1 Y777\_METJA 191 3.7  
1 YGCP\_ECOLI 191 3.7  
1 EPO\_MOUSE 192 3.7  
1 EPO\_RAT 192 3.7  
1 INAL\_RAT 192 3.7  
1 HS27\_CHICK 193 3.7  
1 PGC1\_PIG 193 3.7  
1 VIN3\_BPT4 193 3.7  
1 HSBY\_HUMAN 194 3.7  
1 Y904\_METJA 195 3.7  
1 ADEN\_ADEBA 196 3.7  
1 CRA2\_MESAU 196 3.7  
1 CRA2\_MOUSE 196 3.7  
1 CRA2\_RAT 196 3.7  
1 HTGA\_SPAEH 196 3.7  
1 CRA2\_ECOLI 196 3.7  
1 SFR2\_CAEEL 196 3.7  
1 SOMA\_FUGRU 196 3.7  
1 Y208\_MYCPN 196 3.7  
1 YAAE\_BACSU 196 3.7  
1 YSP2\_LEPIN 196 3.7  
1 ZG8\_XENLA 196 3.7  
1 DEM1\_PHYSA 197 3.7  
1 R16C\_SCHPO 197 3.7  
1 RUVA\_CLOHI 197 3.7  
1 VS11\_ROTHW 197 3.7  
1 VS11\_ROTFS 197 3.7  
1 VS11\_ROTFS 197 3.7  
1 DEM2\_PHYSA 198 3.7  
1 GRPE\_CAUCR 198 3.7  
1 GRPE\_HAEIN 198 3.7  
1 NQRE\_VIBAL 198 3.7

O927z2 chlamydia p  
Q57519 haemophilus  
O18883 bos taurus  
O9C9Y9 lactococcus  
P42369 lactococcus  
P73801 synechocyst  
P51821 chlamydomon  
P06501 simian aden  
P57771 homo sapien  
P49804 rattus norv  
P46998 saccharomyc  
P34661 chlamydia p  
P38784 saccharomyc  
Q06566 chlamydia p  
P29969 equus cabal  
P09160 escherichia  
O82868 rhodovulum  
P47673 mycoplasma  
P42750 arabidopsis  
P42508 rhodobacter  
Q53228 rhodobacter  
P56625 vicia villo  
P47932 mus musculu  
Q9C939 lactococcus  
P09728 human cytom  
O67433 aquifex aeo  
P42110 bacillus su  
P37944 bacillus su  
P40736 bacillus su  
P25560 saccharomyc  
Q9R5W1 deinococcus  
P01567 homo sapien  
P05015 homo sapien  
Q9JW78 neisseria m  
Q9JXP4 neisseria m  
O16207 caenorhabdi  
Q01901 caenorhabdi  
P38876 saccharomyc  
P09537 paralichthy  
P47848 streptococc  
P43940 haemophilus  
Q58187 methanococc  
O46906 escherichia  
P07321 mus musculu  
P29676 rattus norv  
P05011 rattus norv  
Q00649 gallus gall  
Q95250 sus scrofa  
P13302 bacteriopho  
O43416 homo sapien  
P13302 bacteriopho  
O58314 methanococc  
O71070 bovine aden  
P02497 mesocricetu  
P24622 mus musculu  
P24623 rattus norv  
P15990 spalax leuc  
P28697 escherichia  
Q09511 caenorhabdi  
O12980 fugu rubrip  
P75486 mycoplasma  
P37528 bacillus su  
P24845 leptospira  
P18737 xenopus lae  
P05422 phyllomedus  
O43004 schizosacch  
O92N16 clostridium  
P04516 human rotav  
P19715 porcine rot  
Q03054 porcine rot  
P05421 phyllomedus  
P48195 caulobacter  
P43732 haemophilus  
Q56589 vibrio algi

691	5	3.7	198	1	NORE_VTBCH	Q9x4q7 vibrio chol	764	5	3.7	210	1	SOMA_SALSA	P10814 salmo salar
692	5	3.7	198	1	NORE_VTBHA	Q9rfv7 vibrio harv	765	5	3.7	210	1	TRAW_ECOLI	P18472 escherichia
693	5	3.7	198	1	PGD_CHICK	O73888 gallus gall	766	5	3.7	210	1	UPP_DEIRA	Q9ru32 deinococcus
694	5	3.7	198	1	VS11_ROTBV	P23046 bovine rota	767	5	3.7	211	1	SERB_METJA	Q58989 methanococc
695	5	3.7	199	1	EFTS_GALSU	P35019 gaidieria s	768	5	3.7	211	1	YY21_MYCTU	Q50707 mycobacteri
696	5	3.7	199	1	EQST_ACTEQ	P81439 actinia equ	769	5	3.7	212	1	GS27_HUMAN	Q14653 homo sapien
697	5	3.7	199	1	NUOC_RHOCA	O84971 rhodobacter	770	5	3.7	212	1	GS27_MOUSE	Q35166 mus musculu
698	5	3.7	200	1	RACH_DICDI	Q96pr7 dictyosteli	771	5	3.7	212	1	GS27_RAT	O35165 rattus norv
699	5	3.7	200	1	SOMA_HETFO	Q966r8 heteropneus	772	5	3.7	212	1	RB15_RAT	P35289 rattus norv
700	5	3.7	200	1	SOMA_ICTPU	P34745 ictalurur p	773	5	3.7	212	1	SN25_DROME	P36975 drosophila
701	5	3.7	200	1	SOMA_PANPG	P29970 pangasius p	774	5	3.7	212	1	SODM_HAEDU	O30826 haemophilus
702	5	3.7	200	1	Y933_HELPJ	Q9zkr8 helicobacte	775	5	3.7	213	1	HS27_CHILO	P15991 cricetulus
703	5	3.7	200	1	Y933_HELPJ	O25587 helicobacte	776	5	3.7	213	1	SOMA_BUFMA	O73849 bufo marinu
704	5	3.7	201	1	RECR_TREPA	O83969 treponema p	777	5	3.7	213	1	YMO6_YEAST	Q04477 saccharomyc
705	5	3.7	201	1	VP24_BDV	P26668 borna disea	778	5	3.7	214	1	RNH2_CHLPN	Q92962 chlamydia p
706	5	3.7	201	1	YAWC_SCHPO	Q10186 schizosacch	779	5	3.7	214	1	TAL_STRPY	O99y12 streptococc
707	5	3.7	202	1	Y06P_BPT4	P39223 bacterioph	780	5	3.7	214	1	TDX2_SULME	O33665 sulfolobus
708	5	3.7	203	1	CLIP_THEMA	Q9wzif thermotoga	781	5	3.7	214	1	YDL8_SCHPO	P87124 schizosacch
709	5	3.7	203	1	GSTA_RHILE	Q52828 rhizobium l	782	5	3.7	215	1	CYB6_CHLPR	P13347 chlorella p
710	5	3.7	203	1	SOMA_SOLSE	P45643 solea seneg	783	5	3.7	215	1	TDX1_SULME	Q55060 sulfolobus
711	5	3.7	203	1	YC11_AQUAE	O67264 aquifex aeo	784	5	3.7	215	1	VIF_HV2B1	P17897 human immu
712	5	3.7	203	1	YJA4_YEAST	P41544 saccharomyc	785	5	3.7	215	1	VIF_HV2B1	P17897 human immu
713	5	3.7	203	1	YJA4_YEAST	P41544 saccharomyc	786	5	3.7	216	1	KCY_CHLTR	O84458 chlamydia m
714	5	3.7	204	1	RISA_HAEIN	P45273 haemophilus	787	5	3.7	216	1	KCY_CHLTR	O84458 chlamydia t
715	5	3.7	204	1	SOMA_DICLA	Q05163 dicentrarch	788	5	3.7	216	1	RSEA_ECOLI	P38106 escherichia
716	5	3.7	204	1	SOMA_MORSA	P48248 morone saxa	789	5	3.7	216	1	YIU4_YEAST	P40576 saccharomyc
717	5	3.7	204	1	SOMA_SEBSC	P87391 sebastes sc	790	5	3.7	216	1	YL45_AQUAE	O67901 aquifex aeo
718	5	3.7	204	1	SOMA_TRITC	Q98uf6 trichogaste	791	5	3.7	217	1	CREB_HYDAT	P51985 hydra atten
719	5	3.7	204	1	TNE6_HUMAN	Q95857 homo sapien	792	5	3.7	217	1	RR3_PINTH	P41635 pinus thunb
720	5	3.7	204	1	YC42_ODOSI	P49537 odontella s	793	5	3.7	217	1	YJ37_YEAST	P40857 saccharomyc
721	5	3.7	205	1	FLID_PROMI	P42274 proteus mir	794	5	3.7	218	1	ESM2_DROME	O97177 drosophila
722	5	3.7	205	1	HS27_HUMAN	P04792 homo sapien	795	5	3.7	218	1	LPOT_MYCLE	O9cd47 mycobacteri
723	5	3.7	206	1	HGF4_BOVIN	P48803 bos taurus	796	5	3.7	218	1	RR3_PICAB	O62951 picea abies
724	5	3.7	206	1	HS27_RAT	P42930 rattus norv	797	5	3.7	218	1	RR3_TOBAC	P06357 nicotiana t
725	5	3.7	206	1	PAAD_SYNY3	P72743 synecocyst	798	5	3.7	218	1	VNS3_AHSV1	Q64903 african hor
726	5	3.7	206	1	S3AF_BACSU	P47783 bacillus su	799	5	3.7	218	1	VNS3_AHSV2	Q64914 african hor
727	5	3.7	206	1	SOMA_PROAN	O73848 protopterus	800	5	3.7	218	1	VNS3_AHSV8	Q64905 african hor
728	5	3.7	207	1	COAE_PSEPU	O69082 pseudomonas	801	5	3.7	218	1	Y522_METJA	Q57942 methanococc
729	5	3.7	207	1	COAE_PSEPU	P36644 pseudomonas	802	5	3.7	219	1	GN1_DROME	O9va10 drosophila
730	5	3.7	207	1	HGF4_HUMAN	O43320 homo sapien	803	5	3.7	220	1	YN17_CAEEL	P34551 caenorhabdi
731	5	3.7	207	1	HGF4_HUMAN	O43320 homo sapien	804	5	3.7	221	1	CCMB_HAEIN	P45033 haemophilus
732	5	3.7	207	1	GIDB_ECOLI	O54769 rattus norv	805	5	3.7	221	1	GCHI_ECOLI	P27511 escherichia
733	5	3.7	207	1	LEXA_STAAU	P71113 escherichia	806	5	3.7	221	1	I12A_BOVIN	P54349 bos taurus
734	5	3.7	207	1	PSMB_PYRHO	Q914p1 staphylococ	807	5	3.7	221	1	I12A_CAPHI	O02814 capra hircu
735	5	3.7	207	1	SOMA_LABRO	O50110 pyrococcus	808	5	3.7	221	1	I12A_SHEEP	Q9tu27 ovis aries
736	5	3.7	208	1	GRPE_STRAM	O9w617 labeo rohit	809	5	3.7	221	1	PGMB_LACLA	P71447 lactococcus
737	5	3.7	208	1	Y935_METJA	P45553 staphylococ	810	5	3.7	221	1	PLL2_MESAU	P14059 mesocricetu
738	5	3.7	209	1	HS27_CANFA	Q58345 methanococc	811	5	3.7	221	1	THIE_PASMU	P57930 pasteurella
739	5	3.7	209	1	HS27_MOUSE	P42929 canis fami	812	5	3.7	221	1	Y700_RICPR	Q9xcm4 rickettsia
740	5	3.7	209	1	SHR3_YEAST	P14602 mus musculu	813	5	3.7	222	1	CCGI_RABIT	P19518 oryctolagus
741	5	3.7	209	1	SODE_RICPR	Q02774 saccharomyc	814	5	3.7	223	1	PHOP_ECOLI	P23836 escherichia
742	5	3.7	209	1	SOMA_ESOLU	Q9zd15 rickettsia	815	5	3.7	223	1	YA00_TREPA	O83965 treponema p
743	5	3.7	209	1	Y331_MYCPN	P34744 esox lucius	816	5	3.7	224	1	MT04_UREPA	Q9pgm2 ureaplasma
744	5	3.7	209	1	Y622_SULSO	P75307 mycoplasma	817	5	3.7	224	1	PHOP_SALTY	P14146 salmonella
745	5	3.7	210	1	CAT4_ENTAE	Q9ux16 sulfolobus	818	5	3.7	225	1	ALKD_PSEPU	P00885 pseudomonas
746	5	3.7	210	1	FGFL_MOUSE	P50868 enterobacte	819	5	3.7	225	1	EF1B_PIMBR	P93447 pimplinella
747	5	3.7	210	1	OBA5_DROME	Q9jjn1 mus musculu	820	5	3.7	225	1	GDIT_HUMAN	Q99819 homo sapien
748	5	3.7	210	1	SAS_HUMAN	P54185 drosophila	821	5	3.7	225	1	Y116_MOUSE	Q62160 mus musculu
749	5	3.7	210	1	SOM1_CARAU	O12999 homo sapien	822	5	3.7	225	1	Y116_METJA	Q57580 methanococc
750	5	3.7	210	1	SOM1_ONCMY	Q93359 carassius a	823	5	3.7	225	1	Y638_METJA	Q58055 methanococc
751	5	3.7	210	1	SOM1_ONCNE	P09538 oncorhynch	824	5	3.7	226	1	LPQT_MYCTU	O14530 homo sapien
752	5	3.7	210	1	SOM2_CARAU	Q91222 oncorhynch	825	5	3.7	226	1	XL3A_MOUSE	P96384 mycobacteri
753	5	3.7	210	1	SOM2_ONCMY	O93360 carassius a	826	5	3.7	226	1	XL3B_MOUSE	Q60595 mus musculu
754	5	3.7	210	1	SOM2_ONCNE	P02332 oncorhynch	827	5	3.7	226	1	COX2_SITGR	Q61806 mus musculu
755	5	3.7	210	1	SOMA_CORAU	Q91221 oncorhynch	828	5	3.7	227	1	HAD1_PSESP	P29879 sitophilus
756	5	3.7	210	1	SOMA_CORLV	P45655 coregonus a	829	5	3.7	227	1	HAD1_PSESP	P24069 pseudomonas
757	5	3.7	210	1	SOMA_CTEID	O13188 coregonus l	830	5	3.7	227	1	ID11_SCHPO	Q10132 schizosacch
758	5	3.7	210	1	SOMA_CYPEA	P20390 ctenopharyn	831	5	3.7	227	1	PIMT_BRARE	Q10132 schizosacch
759	5	3.7	210	1	SOMA_MISMI	P10298 cyprinus ca	832	5	3.7	227	1	PIMT_BRARE	Q92047 b proteini
760	5	3.7	210	1	SOMA_ONCKE	Q9w6j5 misgurnus m	833	5	3.7	227	1	Y022_BPPI1	P51724 bacterioph
761	5	3.7	210	1	SOMA_ONCKI	P07064 oncorhynch	834	5	3.7	228	1	CLCB_BOVIN	P04975 bos taurus
762	5	3.7	210	1	SOMA_ONCMA	P10607 oncorhynch	835	5	3.7	228	1	HS70_LEIBR	P27894 leishmania
763	5	3.7	210	1	SOMA_ONCTS	Q9dgg5 oncorhynch	836	5	3.7	228	1	LEP4_KLEPN	P15754 klebsiella
						Q07221 oncorhynch							

P10814	salmo salar
P18472	escherichia
Q9ru32	deinococcus
Q58989	methanococ
Q50707	mycobacteri
O14653	homo sapien
Q35166	mus musculu
O35165	rattus norv
P35289	rattus norv
P36975	drosophila
O30826	haemophilus
P15991	cricetulus
O73849	bufo marinu
Q04477	saccharomyc
Q92962	chlamydia p
O99y12	streptococc
O33665	sulfolobus
P87124	schizosacch
P13347	chlorella p
O55060	sulfolobus
P17897	human immu
P17758	human immu
O99y10	chlamydia m
O84458	chlamydia t
P38106	escherichia
P40576	saccharomyc
O67901	aquifex aeo
P51985	lydella atten
P41635	pinus thunb
P40857	saccharomyc
O97177	drosophila
O96c47	mycobacteri
O62951	picea abies
O66357	nicotiana t
O64303	alfalfa hor
O64914	afrikan hor
O64905	afrikan hor
Q57942	methanococ
O9v410	drosophila
P34551	caenorhabdi
P45033	haemophilus
P27511	escherichia
P54349	bos taurus
O02814	capra hircu
Q9ut27	ovis aries
P71147	lactococcu
P14059	mesocricetu
P57930	pasteurella
Q9zcm4	rickettsia
P19518	oryctolagus
P23836	escherichia
O83965	treponema p
Q9pqm2	ureaplasma
P14146	salmonella
O00885	pseudomonas
P93447	pimpinella
Q99819	homo sapien
O62160	mus musculu
Q57580	methanococ
Q58055	methanococ
O14530	homo sapien
P96384	mycobacteri
O60595	mus musculu
Q61806	mus musculu
P23879	staphilop
P24069	pseudomonas
Q10132	schizosacch
P22090	thiacallu
Q92047	b protein-l
P51724	bacterioph
P04975	bos taurus
P27894	leishmania
P15754	klebsiella



837	5	3.7	228	1	RR2_MESVI	Q9mus8	mesostigma	910	5	3.7	242	1	OMP4_NEIMA	P38367	neisseria m
838	5	3.7	228	1	YM42_CAEEL	P34518	caenorhabdi	911	5	3.7	243	1	COX2_PNECA	P29163	pneumocysti
839	5	3.7	228	1	YTUB_ERWHE	Q47826	erwinia her	912	5	3.7	243	1	FUCR_ECOLI	P11554	escherichia
840	5	3.7	229	1	CENA_SPIOL	Q9m314	spinacia ol	913	5	3.7	243	1	LEC1_ULEEU	P22972	ulex europe
841	5	3.7	229	1	CLCB_HUMAN	P09497	homo sapien	914	5	3.7	244	1	COAT_MSVK	P03569	maize strea
842	5	3.7	229	1	CLCB_RAT	P08082	rattus norv	915	5	3.7	244	1	COAT_MSVN	P06448	maize strea
843	5	3.7	229	1	MODB_HAEIN	P45322	haemophilus	916	5	3.7	244	1	COAT_MSVS	P14986	maize strea
844	5	3.7	229	1	PHOB_ECOLI	P08402	escherichia	917	5	3.7	244	1	RS2_BUCAI	P57325	buchnera ap
845	5	3.7	229	1	PHOB_KLEPN	P45605	klebsiella	918	5	3.7	244	1	SFSA_VIBCH	Q9kuc5	vibrio chol
846	5	3.7	229	1	PHOB_SHIDY	P45607	shigella fl	919	5	3.7	245	1	DNAC_ECOLI	P33929	escherichia
847	5	3.7	229	1	PHOB_SHIFL	P45607	shigella fl	920	5	3.7	245	1	DNAC_ECOLI	P07905	escherichia
848	5	3.7	229	1	VE4_HPV08	P06425	human papil	921	5	3.7	245	1	FLIP_AGRT5	Q44344	agrobacteri
849	5	3.7	229	1	Y544_METUA	Q57964	methanococ	922	5	3.7	245	1	FLIP_RHIME	P37827	rhizobium m
850	5	3.7	230	1	EF1B_BETVU	O81918	beta vulgar	923	5	3.7	245	1	YBPA_BURCE	P37335	burkholderi
851	5	3.7	230	1	VATE_ARATH	Q39258	arabidopsis	924	5	3.7	246	1	GP6D_CHLMU	Q46442	chlamydia m
852	5	3.7	230	1	VATE_CITLI	Q9swe7	citrus limo	925	5	3.7	246	1	MTT1_HUMAN	Q00059	homo sapien
853	5	3.7	230	1	Y4OC_RHISN	P55588	rhizobium s	926	5	3.7	246	1	PHOS_HUMAN	P20941	homo sapien
854	5	3.7	231	1	BIOD_VIBCH	Q9kszi	vibrio chol	927	5	3.7	246	1	PRTP_HSV2	P36385	herpes simp
855	5	3.7	231	1	EF1C_ARATH	P48006	arabidopsis	928	5	3.7	247	1	DB83_HUMAN	P57088	homo sapien
856	5	3.7	231	1	EF1C_ARATH	Q9si20	arabidopsis	929	5	3.7	247	1	DB83_RAT	Q92142	rattus norv
857	5	3.7	231	1	KAD_PRIAR	O24464	prunus arme	930	5	3.7	248	1	COX2_SCHPO	P21534	schizosach
858	5	3.7	231	1	NDK2_ARATH	O64903	arabidopsis	931	5	3.7	248	1	GRAC_MOUSE	P08882	mus musculu
859	5	3.7	231	1	RNC_CHLTR	O84299	chlamydia t	932	5	3.7	248	1	GRAD_MOUSE	P11033	mus musculu
860	5	3.7	231	1	YEAZ_ECOLI	P76256	escherichia	933	5	3.7	248	1	GRAE_MOUSE	P08884	mus musculu
861	5	3.7	232	1	CHSY_MALDO	P30078	malus domes	934	5	3.7	248	1	GRAG_MOUSE	P08883	mus musculu
862	5	3.7	232	1	FL3L_MOUSE	P49772	mus musculu	935	5	3.7	248	1	GRAG_MOUSE	P13366	mus musculu
863	5	3.7	232	1	YDFE_SCHPO	Q10485	schizosacch	936	5	3.7	248	1	NADE_MYCPN	P75216	mycoplasma
864	5	3.7	232	1	YH73_SVNV3	P73623	synchoecyst	937	5	3.7	249	1	CREB_CHLVR	P51984	chlorohydra
865	5	3.7	233	1	DEOD_HELPJ	Q92k38	helicobacte	938	5	3.7	249	1	LEC2_ULEEU	P22973	ulex europe
866	5	3.7	233	1	DEOD_HELPJ	P56463	helicobacte	939	5	3.7	249	1	MOEB_ECOLI	P12282	escherichia
867	5	3.7	233	1	FLPA_AERPE	Q9y9u3	aeropyrum p	940	5	3.7	249	1	MOEB_SALTY	Q56067	salmonella
868	5	3.7	233	1	NDK2_SPIOL	Q01402	spinacia ol	941	5	3.7	249	1	YCIT_ECOLI	P76034	escherichia
869	5	3.7	233	1	RNC_COXBU	P51837	coxiella bu	942	5	3.7	250	1	COX2_NEUCR	P00411	neurospora
870	5	3.7	233	1	SN6_MOUSE	Q92112	mus musculu	943	5	3.7	250	1	LEC1_LABAL	P23558	laburnum al
871	5	3.7	233	1	YJ08_YEAST	P47006	saccharomyc	944	5	3.7	250	1	RS2_ZYMMO	Q925e7	zymomonas m
872	5	3.7	233	1	YJF5_YEAST	P39541	saccharomyc	945	5	3.7	250	1	YNCM_BACSU	Q31803	bacillus su
873	5	3.7	234	1	CYB_LEPEU	Q47561	lepus europ	946	5	3.7	251	1	1433_TOBAC	Q14246	nicotiana t
874	5	3.7	234	1	TRMD_RICPR	Q9ze37	rickettsia	947	5	3.7	251	1	ARC3_CBDP	P15879	clostridium
875	5	3.7	235	1	EFTU_PLEBO	P50066	plectonema	948	5	3.7	251	1	SAST_ANAPL	P00633	anas platyr
876	5	3.7	235	1	GAMT_RAT	P10868	rattus norv	949	5	3.7	251	1	YIBM_BACSU	P37491	bacillus su
877	5	3.7	235	1	ICLN_CANFA	P35521	canis famil	950	5	3.7	251	1	COX2_EMENI	P13588	emericeila
878	5	3.7	235	1	REP3_STAUA	P05061	staphylococ	951	5	3.7	252	1	RS2_PASMU	P57982	pasteurella
879	5	3.7	235	1	RR2_GUITH	O78482	guillardia	952	5	3.7	252	1	Y035_UREPA	Q9orb0	ureaplasma
880	5	3.7	236	1	CYB_ANGRO	P34861	anguilla ro	953	5	3.7	253	1	3BHD_COMTE	P19871	comamonas t
881	5	3.7	236	1	ICLN_MOUSE	Q61189	mus musculu	954	5	3.7	253	1	SURE_ECOLI	P36664	escherichia
882	5	3.7	236	1	ICLN_RAT	Q04753	rattus norv	955	5	3.7	253	1	TPM1_HYDAT	P39921	hydra atten
883	5	3.7	236	1	OMP3_NEIGO	P07050	neisseria g	956	5	3.7	253	1	UPPS_CHLMU	Q9pju2	chlamydia m
884	5	3.7	236	1	PUR7_LACLA	O68830	lactococcus	957	5	3.7	253	1	UPPS_CHLTR	O84456	chlamydia t
885	5	3.7	236	1	PUR7_LACLC	Q9r7d5	lactococcus	958	5	3.7	253	1	Y4MP_RHISN	P55575	rhizobium s
886	5	3.7	236	1	STX8_HUMAN	Q9unk0	homo sapien	959	5	3.7	254	1	VMAT_TFTV	P31620	turkey rhin
887	5	3.7	236	1	STX8_RAT	Q922q7	rattus norv	960	5	3.7	255	1	AMPW_TREPA	O83814	treponema p
888	5	3.7	236	1	YEW3_SCHPO	O41411	schizosacch	961	5	3.7	255	1	CBPM_STRAL	P00733	streptomyce
889	5	3.7	236	1	YG99_CLOAB	P33664	clostridium	962	5	3.7	255	1	GRPS_MYXXA	P95333	myxococcus
890	5	3.7	237	1	APHA_SALTY	O08430	salmonella	963	5	3.7	255	1	MYF5_XENLA	P24700	xenopus lae
891	5	3.7	237	1	APHA_SALTY	P58683	salmonella	964	5	3.7	255	1	VGLE_HSV4	P18345	equine herp
892	5	3.7	237	1	COX2_TRIRU	Q01556	trichophyto	965	5	3.7	256	1	ADH_ZAPTU	P51552	zapionus t
893	5	3.7	237	1	ICLN_HUMAN	P54105	homo sapien	966	5	3.7	256	1	GRST_BACBR	P14686	bacillus br
894	5	3.7	237	1	VATE_GOSHI	O23948	gossypium h	967	5	3.7	256	1	KPTA_AERPE	Q9yfp5	aeropyrum p
895	5	3.7	237	1	YC28_PORPU	P51342	porphyra pu	968	5	3.7	257	1	YGIE_ECOLI	P24198	escherichia
896	5	3.7	237	1	YC53_CYACA	O19887	cyanidium c	969	5	3.7	258	1	DHG2_BACSU	P80869	bacillus su
897	5	3.7	237	1	YHY5_YEAST	P38872	saccharomyc	970	5	3.7	258	1	HYI_ECOLI	P30147	escherichia
898	5	3.7	237	1	YMU5_STRCM	Q05071	streptomyce	971	5	3.7	259	1	DJBA_MOUSE	Q9gy15	mus musculu
899	5	3.7	237	1	YNAF_BACSU	P25149	bacillus su	972	5	3.7	259	1	MOB2_YEAST	P43563	saccharomyc
900	5	3.7	238	1	PELX_ERWCA	P16530	erwinia car	973	5	3.7	259	1	PPNK_MYCPN	P75508	mycoplasma
901	5	3.7	238	1	PRRC_RAT	P33579	rattus norv	974	5	3.7	259	1	YCBC_ECOLI	P36565	escherichia
902	5	3.7	238	1	Y035_TREPA	O83078	treponema p	975	5	3.7	259	1	YQJO_BACSU	P54554	bacillus su
903	5	3.7	239	1	3MGH_PSEAE	Q9hxi7	pseudomonas	976	5	3.7	260	1	CABV_BOVIN	P04467	bos taurus
904	5	3.7	239	1	RS2_HAEIN	P44371	haemophilus	977	5	3.7	260	1	CABV_HUMAN	P05937	homo sapien
905	5	3.7	240	1	HIS4_STRCO	P16250	streptomyce	978	5	3.7	260	1	CABV_MOUSE	P12658	mus musculu
906	5	3.7	240	1	LECS_VATMA	P81371	vatairea ma	979	5	3.7	261	1	CABV_RAT	P07171	rattus norv
907	5	3.7	240	1	RS2_ECOLI	P02351	escherichia	980	5	3.7	261	1	CABV_CHICK	P04354	gallus gall
908	5	3.7	240	1	VA46_VACCV	P26672	vaccinia vi	981	5	3.7	261	1	CLDI_HUMAN	P56856	homo sapien
909	5	3.7	241	1	143B_ARATH	Q9s928	arabidopsis	982	5	3.7	261	1	COX3_RABIT	O79433	oryctolagus

983 5 3.7 261 1 DHSB\_RICCN Q92jj8 rickettsia  
 984 5 3.7 261 1 HXC9\_FUGRU O42502 fuqu rubrip  
 985 5 3.7 261 1 Y602\_METJA Q58019 methanococ  
 986 5 3.7 261 1 YSCT\_YERPE P40299 versinia pe  
 987 5 3.7 262 1 CUT8\_SCHPO P38937 schizosacch  
 988 5 3.7 262 1 GRAA\_HUMAN P12544 homo sapien  
 989 5 3.7 262 1 LAMB\_EMENI P38096 emerichia  
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 991 5 3.7 262 1 NCAP\_INSVN P28975 impatiens n  
 992 5 3.7 262 1 NCAP\_INSVN Q01808 impatiens n  
 993 5 3.7 262 1 RS4V\_HUMAN P22090 homo sapien  
 994 5 3.7 262 1 RS4V\_CHICK P47836 gallus gall  
 995 5 3.7 262 1 YJHI\_ECOLI P39360 escherichia  
 996 5 3.7 262 1 Y052\_CAEEL Q09462 caenorhabdi  
 997 5 3.7 262 1 YXBG\_BAGSU P46331 bacillus su  
 998 5 3.7 263 1 COV1\_HUMAN Q16206 homo sapien  
 999 5 3.7 263 1 ITMA\_HUMAN O43736 homo sapien  
 1000 5 3.7 263 1 ITMA\_MOUSE Q61500 mus musculus

## ALIGNMENTS

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RESULT 1
PLL_HUMAN
ID P01243; STANDARD; PRT; 217 AA.
AC 21-JUL-1986 (Rel. 01, Created)
DT 01-APR-1988 (Rel. 07, Last sequence update)
DE 16-OCT-2001 (Rel. 40, Last annotation update)
DE Lactogen precursor (Choriomammotropin) (Chorionic somatomammotropin).
GN CSH1 AND CSH3.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX NCBI_TaxID=9606;
RN [1]
RP SEQUENCE FROM N.A. (GENE CSH1).
RX MEDLINE=85030426; PubMed=6208192;
RA Selby M.J., Barta A., Baxter J.D., Bell G.I., Eberhardt N.L.;
RT "Analysis of a major human chorionic somatomammotropin gene. Evidence
RT for two functional promoter elements.";
RL J. Biol. Chem. 259:13131-13138(1984).
RN [2]
RP SEQUENCE FROM N.A. (GENE CSH3).
RX MEDLINE=87161235; PubMed=3030680;
RA Hirt H., Kimelman J., Birnbaum M.J., Chen E.Y., Seeburg P.H.,
RA Eberhardt N.L., Barta A.;
RT "The human growth hormone gene locus: structure, evolution, and
RT allelic variations.";
RL DNA 6:59-70(1987).
RN [3]
RP SEQUENCE FROM N.A.
RX MEDLINE=83160916; PubMed=6300056;
RA Barrera-Saldana H.A., Seeburg P.H., Saunders G.F.;
RT "Two structurally different genes produce the same secreted human
RT placental lactogen hormone.";
RL J. Biol. Chem. 258:3787-3793(1983).
RN [4]
RP SEQUENCE FROM N.A. (GENES CSH1 AND CSH3).
RX MEDLINE=89307277; PubMed=2744760;
RA Chen E.Y., Liao Y.C., Smith D.H., Barrera-Saldana H.A., Gelinas R.E.,
RA Seeburg P.H.;
RT "The human growth hormone locus: nucleotide sequence, biology, and
RT evolution.";
RL Genomics 4:479-497(1989).
RN [5]
RP SEQUENCE.
RX MEDLINE=83182010; PubMed=7169009;
RA Seeburg P.H.;
RT "The human growth hormone gene family: nucleotide sequences show
RT recent divergence and predict a new polypeptide hormone.";
RL DNA 1:239-249(1982).

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RN [6]
RP SEQUENCE OF 50-217 FROM N.A.
RX MEDLINE=78071761; PubMed=593368;
RA Shine J., Seeburg P.H., Martial J.A., Baxter J.D., Goodman H.M.;
RT "Construction and analysis of recombinant DNA for human chorionic
RT somatomammotropin.";
RL Nature 270:494-499(1977).
RN [7]
RP SEQUENCE OF 27-217.
RX MEDLINE=73201971; PubMed=4712450;
RA Li C.H., Dixon J.S., Chung D.;
RT "Amino acid sequence of human chorionic somatomammotropin.";
RL Arch. Biochem. Biophys. 155:95-110(1973).
RN [8]
RP SEQUENCE OF 27-117.
RX MEDLINE=72016313; PubMed=5286363;
RA Sherwood L.M., Handwerger S., McLaurin W.D., Lanner M.;
RT "Amino-acid sequence of human placental lactogen.";
RL Nature New Biol. 233:59-61(1971).
RN [9]
RP ERRATUM.
RA Sherwood L.M., Handwerger S., McLaurin W.D., Lanner M.;
RL Nature New Biol. 235:64-64(1972).
RN [10]
RP INTERCHAIN DISULFIDE BONDS.
RX MEDLINE=79173081; PubMed=438159;
RA Schneider A.B., Kowalski K., Russell J., Sherwood L.M.;
RT "Identification of the interchain disulfide bonds of dimeric human
RT placental lactogen.";
RL J. Biol. Chem. 254:3782-3787(1979).
CC -!- FUNCTION: SIMILAR TO THAT OF SOMATOTROPIN.
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- MISCELLANEOUS: THE SEQUENCE OF CSH-1 IS SHOWN.
CC -!- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.
CC -----
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CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL; V00573; CAA23836.1; -
DR EMBL; J00289; AAA98747.1; -
DR EMBL; K02401; AAA52115.1; -
DR EMBL; M15894; AAA52116.1; -
DR EMBL; J03071; AAA52551.1; -
DR EMBL; J00118; AAA98621.1; -
DR PIR; A01512; LCHUC.
DR PIR; A26449; A26449.
DR PIR; E32435; E32435.
DR PIR; E32435; E32435.
DR HSSP; P01241; LHWH.
DR MIM; 150200; -
DR InterPro; IPR001400; SOMATOTROPIN.
DR Pfam; PF00103; hormone_1.
DR PRINTS; PR00836; SOMATOTROPIN.
DR PROSITE; PS00286; SOMATOTROPIN_1; 1.
DR PROSITE; PS00338; SOMATOTROPIN_2; 1.
KW Hormone; Placenta; Multigene family; Signal.
FT SIGNAL 1 26
FT CHAIN 27 217 LACTOGEN.
FT DISULFID 79 191
FT DISULFID 208 215
FT DISULFID 215 215
FT VARIANT 3 3
FT VARIANT 104 105
FT VARIANT 84 84
FT CONFLICT 95 95
FT CONFLICT 84 84
FT CONFLICT 95 95

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[7]  
SEQUENCE OF 27-51 AND 104-120.  
MEDLINE=711139765; PubMed=5279046;  
Niall H.D.;  
"Revised primary structure for human growth hormone.";  
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[8]  
REVISION.  
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[9]  
REVISION.  
Niall H.D.;  
"The chemistry of the human lactogenic hormones.";  
(In) Griffiths K. (eds.);  
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[10]  
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MEDLINE=71153968; PubMed=5279528;  
Niall H.D., Hogan M.L., Sauer R., Rosenblum I.Y., Greenwood F.C.;  
"Sequences of pituitary and placental lactogenic and growth hormones: evolution from a primordial peptide by gene reduplication.";  
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[11]  
SEQUENCE OF 27-57 AND 73-79.  
MEDLINE=81117361; PubMed=7462247;  
Chapman G.E., Rogers K.M., Brittain T., Bradshaw R.A., Bates O.J., Turner C., Cary P.D., Crane-Robinson C.;  
"The 20,000 molecular weight variant of human growth hormone. Preparation and some physical and chemical properties.";  
J. Biol. Chem. 256:2395-2401(1981).  
[12]  
SEQUENCE OF 46-57 AND 73-80.  
MEDLINE=80130196; PubMed=73356479;  
Lewis U.J., Bonewald L.F., Lewis L.J.;  
"The 20,000-dalton variant of human growth hormone: location of the amino acid deletions.";  
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[13]  
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Cohen F.E., Kuntz I.D.;  
"Prediction of the three-dimensional structure of human growth hormone.";  
Proteins 2:162-166(1987).  
[14]  
X-RAY CRYSTALLOGRAPHY (2.8 ANGSTROMS).  
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de Vos A.M., Ultsch M., Kossiakoff A.A.;  
"Human growth hormone and extracellular domain of its receptor: crystal structure of the complex.";  
Science 255:306-312(1992).  
[15]  
X-RAY CRYSTALLOGRAPHY (2.9 ANGSTROMS).  
MEDLINE=95075462; PubMed=7984244;  
Somers W., Ultsch M., de Vos A.M., Kossiakoff A.A.;  
"The x-ray structure of a growth hormone-prolactin receptor complex.";  
Nature 372:478-481(1994).  
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X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS).  
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"The crystal-structure of wild-type growth-hormone at 2.5-A resolution.";  
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[17]  
X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS).

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RX MEDLINE=97113023; PubMed=8943276;
RA Sundstroem M., Lundqvist T., Roedin J., Giebel L.B., Milligan D.,
RA Norstedt G.;
RT "Crystal structure of an antagonist mutant of human growth hormone,
RT G120R, in complex with its receptor at 2.9-A resolution.";
RL J. Biol. Chem. 271:32197-32203(1996).
CC -|- FUNCTION: GROWTH HORMONE PLAYS AN IMPORTANT ROLE IN GROWTH
CC CONTROL.
CC -|- SUBCELLULAR LOCATION: Secreted.
CC -|- ALTERNATIVE PRODUCTS: A 20 kDa SHORT VARIANT WHICH LACKS 58-72 IS
CC PRODUCED AS THE RESULT OF SPLICING AT THE ALTERNATE JUNCTION
CC OF THE SECOND INTRON.
CC -|- DISEASE: DEFECTS IN GH1 ARE A CAUSE OF PITUITARY DWARFISM I AND
CC IV.
CC -|- PHARMACEUTICAL: Available under the names Nutropin or Protropin
CC (Genentech), Norditropin (Novo Nordisk), Genotropin (Pharmacia
CC Upjohn), Humatrope (Eli Lilly) and Saizen or Serostim (Serono).
CC Used for the treatment of growth hormone deficiency and for
CC Turner's syndrome.
CC -|- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.
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DR EMBL; V00519; CAA23778.1; -
DR EMBL; J03071; AAA52549.1; -
DR EMBL; M13438; AAA98618.1; -
DR EMBL; A12770; CAA01057.1; -
DR EMBL; A00469; CAA00065.1; -
DR PIR; A01510; STHU.
DR PIR; A32435; A32435
DR PDB; 3HRH; 30-APR-94.
DR PDB; 1HUW; 31-JAN-94.
DR PDB; 1HGU; 07-DEC-95.
DR PDB; 1HWG; 19-NOV-97.
DR PDB; 1HHW; 19-NOV-97.
DR PDB; 1AXI; 28-JAN-98.
DR PDB; 1A22; 28-APR-98.
DR PDB; 1BP3; 23-SEP-98.
DR MIM; 139250; -
DR MIM; 262400; -
DR MIM; 262650; -
DR InterPro; IPR001400; SOMATOTROPIN.
DR Pfam; PF00103; hormone; 1.
DR PRINTS; PR00836; SOMATOTROPIN.
DR PROSITE; PS00266; SOMATOTROPIN_1; 1.
DR PROSITE; PS00338; SOMATOTROPIN_2; 1.
KW Pituitary; Hormone; Alternative splicing; Signal; 3D-structure;
KW Dwarfism; Pharmaceutical; Polymorphism.
FT SIGNAL 1 26
FT CHAIN 27 217 SOMATOTROPIN.
FT DISULFID 79 191
FT DISULFID 208 215
FT VARSPPLIC 58 72
FT VARIANT 3 3
FT VARIANT 105 105
FT VARIANT 136 136
FT HELIX 32 61
FT HELIX 64 72
FT TURN 76 77
FT TURN 80 83
FT HELIX 90 94
FT TURN 95 95
FT HELIX 98 110
FT TURN 111 114
MISSING (IN 20 KDA ISOFORM).
T -> A (IN DBSNP:2001345).
S -> C (IN DBSNP:6174).
V -> I (IN DBSNP:5388).
/FTid=VAR_011918.
/FTid=VAR_011919.

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FT HELIX 115 125
Query Match 16.3%; Score 22; DB 1; Length 217;
Best Local Similarity 100.0%; Pred. No. 9.5e-15;
Matches 22; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
QY 114 LKDLKEEGIOTLMGRLEDGSPR 135
Db 139 LKDLKEEGIOTLMGRLEDGSPR 160
|||||
RESULT 3
SOMA_CALJA STANDARD; PRT; 217 AA.
AC Q9GMB3;
DT 01-MAR-2002 (Rel. 41, Created)
DT 01-MAR-2002 (Rel. 41, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Somatotropin precursor (growth hormone).
GN GH1.
OS Callithrix jacchus (Common marmoset).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Platyrrhini; Callitrichidae; Callithrix.
OX NCBI_TaxID=9483;
RN [1]
RP SEQUENCE FROM N.A.
RA Wallis O.C., Wallis M.;
RT "Cloning and characterisation of a putative growth hormone encoding
RT gene from the marmoset (Callithrix jacchus).";
RL Submitted (AUG-2000) to the EMBL/GenBank/DBJ databases.
CC -|- FUNCTION: GROWTH HORMONE PLAYS AN IMPORTANT ROLE IN GROWTH
CC CONTROL.
CC -|- SUBCELLULAR LOCATION: Secreted.
CC -|- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.
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CC -----
DR EMBL; AJ297563; CAC03481.1; -
DR InterPro; IPR001400; SOMATOTROPIN.
DR Pfam; PF00103; hormone; 1.
DR PRINTS; PR00836; SOMATOTROPIN.
DR PROSITE; PS00266; SOMATOTROPIN_1; 1.
DR PROSITE; PS00338; SOMATOTROPIN_2; 1.
KW Hormone; Pituitary; Signal.
FT SIGNAL 1 26 BY SIMILARITY.
FT CHAIN 27 217 SOMATOTROPIN.
FT DISULFID 79 191 BY SIMILARITY.
FT DISULFID 208 215 BY SIMILARITY.
FT SEQUENCE 217 AA; 24959 MW; E102151A12CE6192 CRC64;
Query Match 15.6%; Score 21; DB 1; Length 217;
Best Local Similarity 100.0%; Pred. No. 9.6e-14;
Matches 21; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
QY 115 LKDLKEEGIOTLMGRLEDGSPR 135
Db 140 LKDLKEEGIOTLMGRLEDGSPR 160
|||||
RESULT 4
SOMA_MACMU STANDARD; PRT; 217 AA.
AC P33033;
DT 01-OCT-1993 (Rel. 27, Created)
DT 01-OCT-1994 (Rel. 30, Last sequence update)
DT 01-FEB-1996 (Rel. 33, Last annotation update)

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DE Somatotropin precursor (Growth hormone).
GN GH1.
OS Macaca mulatta (Rhesus macaque).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Cercopithecoidea;
OC Cercopithecoidea; Macaca.
OX NCBI_TaxID=9544;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=94008724; PubMed=8404617;
RA Golos T.G., Durning M., Fisher J.M., Fowler P.D.;
RT "Cloning of four growth hormone/chorionic somatomammotropin-related
RT complementary deoxyribonucleic acids differentially expressed during
RT pregnancy in the rhesus monkey placenta.";
RL Endocrinology 133:1744-1752(1993).
RN [2]
RP SEQUENCE OF 27-217.
RX MEDLINE=86129460; PubMed=3080959;
RA Li C.H., Chung D., Lahm H.W., Stein S.;
RT "The primary structure of monkey pituitary growth hormone.";
RL Arch. Biochem. Biophys. 245:287-291(1986).
CC -1- FUNCTION: GROWTH HORMONE PLAYS AN IMPORTANT ROLE IN GROWTH
CC CONTROL.
CC -1- SUBCELLULAR LOCATION: Secreted.
CC -1- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.
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CC -----
DR EMBL; L16556; AAA18842.1; -.
DR PIR; A05094; A05094.
DR HSSP; P01241; 1HWG.
DR InterPro; IPR001400; SOMATOTROPIN.
DR Pfam; PF00103; hormone; 1.
DR PRINTS; PR00836; SOMATOTROPIN.
DR PROSITE; PS00266; SOMATOTROPIN_1; 1.
DR PROSITE; PS00338; SOMATOTROPIN_2; 1.
DR Hormone; Pituitary; Signal.
FT SIGNAL 1 26
FT CHAIN 27 217 SOMATOTROPIN.
FT DISULFID 79 191 BY SIMILARITY.
FT DISULFID 208 215 BY SIMILARITY.
FT CONFLICT 100 100 E -> Q (IN REF. 2).
FT CONFLICT 179 179 N -> D (IN REF. 2).
SQ SEQUENCE 217 AA; 24913 MW; 2C5180341EEC46D0 CRC64;

Query Match 14.8%; Score 20; DB 1; Length 217;
Best Local Similarity 100.0%; Pred. No. 9.6e-13;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 114 LKDLREGIOTLMGRLEDGS 133
DQ 139 LKDLREGIOTLMGRLEDGS 158

RESULT 5
SOMV HUMAN STANDARD; PRT; 217 AA.
AC P01242;
DT 21-JUL-1986 (Rel. 01, Created)
DT 01-AUG-1991 (Rel. 19, Last sequence update)
DT 16-OCT-2001 (Rel. 40, Last annotation update)
DE Growth hormone variant I precursor (GH-V) (Placenta-specific growth
DE hormone).
DE GH2.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

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OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX NCBI_TaxID=9606;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=89307277; PubMed=2744760;
RA Chen E.Y., Liao Y.C., Smith D.H., Barrera-Saldana H.A.,
RA Gelinas R.E., Seeburg P.H.;
RT "The human growth hormone locus: nucleotide sequence, biology, and
RT evolution.";
RL Genomics 4:479-497(1989).
RN [2]
RP SEQUENCE FROM N.A.
RX MEDLINE=88243769; PubMed=3379057;
RA Cooke N.E., Ray J., Emery J.G., Liebhaber S.A.;
RT "Two distinct species of human growth hormone-variant mRNA in the
RT human placenta predict the expression of novel growth hormone
RT proteins.";
RL J. Biol. Chem. 263:9001-9006(1988).
RN [3]
RP SEQUENCE FROM N.A.
RX MEDLINE=83182010; PubMed=7169009;
RA Seeburg P.H.;
RT "The human growth hormone gene family: nucleotide sequences show
RT recent divergence and predict a new polypeptide hormone.";
RL DNA 1:239-249(1982).
RN [4]
RP SEQUENCE FROM N.A.
RX MEDLINE=89024984; PubMed=2460050;
RA Igout A., Scippo M.L., Frankenne F., Hennen G.;
RT "Cloning and nucleotide sequence of placental hGH-V cDNA.";
RL Arch. Int. Physiol. Biochim. 96:63-67(1988).
CC -1- SUBCELLULAR LOCATION: Secreted.
CC -1- ALTERNATIVE PRODUCTS: TWO GROWTH HORMONE VARIANTS ARE PRODUCED BY
CC -1- ALTERNATIVE SPLICING OF THE SAME GENE.
CC -1- TISSUE SPECIFICITY: THIS PROTEIN SEEMS TO BE EXPRESSED IN THE
CC PLACENTA.
CC -1- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.
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CC -----
DR EMBL; K00470; AAA98619.1; -.
DR EMBL; J03756; AAB59548.1; -.
DR EMBL; J03071; AAA52552.1; -.
DR EMBL; M38451; AAA35891.1; -.
DR PIR; A01511; STHUV.
DR PIR; B28072; B28072.
DR PIR; D32435; D32435.
DR HSSP; P01241; 1HWG.
DR TM; 139240; -.
DR InterPro; IPR001400; SOMATOTROPIN.
DR Pfam; PF00103; hormone; 1.
DR PRINTS; PR00836; SOMATOTROPIN.
DR PROSITE; PS00266; SOMATOTROPIN_1; 1.
DR PROSITE; PS00338; SOMATOTROPIN_2; 1.
DR Hormone; Placenta; Signal; Glycoprotein; Alternative splicing.
FT SIGNAL 1 26
FT CHAIN 27 217 GROWTH HORMONE VARIANT I.
FT DISULFID 79 191 BY SIMILARITY.
FT DISULFID 208 215 BY SIMILARITY.
FT CARBOHYD 166 166 N-LINKED (GLCNAC... ) (POTENTIAL).
FT CONFLICT 35 35 L -> P (IN REF. 3).
FT CONFLICT 109 109 T -> I (IN REF. 2 AND 4).
SQ SEQUENCE 217 AA; 24987 MW; 40FE8620A5138D1C CRC64;

Query Match 11.9%; Score 16; DB 1; Length 217;
Best Local Similarity 100.0%; Pred. No. 9.9e-09;

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QY	68	TQKSNLELLRISLL	83
Db	93	TQKSNLELLRISLL	108

OS *Macaca mulatta* (Rhesus macaque).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Primates; Catarrhini; Cercopithecoidea;  
 OC Cercopithecinae; Macaca.  
 OX NCBI\_TaxID=9544;  
 {}  
 RN  
 RP SEQUENCE FROM N.A.  
 RA GOLDS T. G.;

RA Jhurani P., Goeddel D.V., Heyneker H.L.;  
 RT "Efficient bacterial expression of bovine and porcine growth  
 RT hormones.";   
 RL DNA 2:37-45(1983).  
 RN [3]  
 RN SEQUENCE FROM N.A.  
 RP  
 RC TISSUE=Liver;  
 RX MEDLINE=840558733; PubMed=6357899;  
 RA Sverdlova P.S., Chupueva V.V., Golova Y.B., Batchikova N.V.,  
 RA Zhvirblis G.S., Skryabin K.G., Baev A.A.;  
 RT "Genetic engineering of peptide hormones.";   
 RL Mol. Biol. (Mosk) 19:226-235(1985).  
 RN [5]  
 RN SEQUENCE FROM N.A.  
 RP  
 RC STRAIN=NELORE; TISSUE=Pituitary;  
 RA Mauro S.M.Z., Ferro M.I.T., Macari M., Ferro J.A.;  
 RT "The complete sequence of a cDNA encoding the bovine growth hormone.";   
 RL Submitted (NOV-1997) to the EMBL/GenBank/DBJ databases.  
 RN [6]  
 RN SEQUENCE.  
 RP  
 RX MEDLINE=74028758; PubMed=4584625;  
 RA Wallis M.;  
 RT "The primary structure of bovine growth hormone.";   
 RL FEBS Lett. 35:11-14(1973).  
 RN [7]  
 RN SEQUENCE OF 91-96 AND 104-121.  
 RX MEDLINE=74146429; PubMed=4856718;  
 RA Graf L., Li C.H.;  
 RT "On the primary structure of pituitary bovine growth hormone.";   
 RL Biochem. Biophys. Res. Commun. 56:168-176(1974).  
 RN [8]  
 RN SEQUENCE.  
 RP  
 RX MEDLINE=73249153; PubMed=4580883;  
 RA Santome J.A., Dellacha J.M., Paladini A.C., Pena C., Biscoglio M.J.,  
 RA Daurat S.T., Poskus E., Wolfenstein C.E.M.; "  
 RT "Primary structure of bovine growth hormone.";   
 RL Eur. J. Biochem. 37:164-170(1973).  
 RN [9]  
 RN SEQUENCE OF 27-49 FROM N.A.  
 RP  
 RX MEDLINE=86004063; PubMed=3899556;  
 RA George H.J., L'Italien J.J., Pillacinski W.P., Glassman D.L.,  
 RA Krzyzek R.A.;  
 RT "high-level expression in Escherichia coli of biologically active  
 RT bovine growth hormone.";   
 RL DNA 4:273-281(1985).  
 RN [10]  
 RN EVIDENCE FOR TWO ALLELIC CHAINS.  
 RP  
 RX MEDLINE=71207803; PubMed=5579941;  
 RA Seavey B.K., Singh R.N.P., Lewis U.J., Geschwind I.I.; "  
 RT "Bovine growth hormone: evidence for two allelic forms.";   
 RL Biochem. Biophys. Res. Commun. 43:189-195(1971).  
 RN [11]  
 RN CHARACTERIZATION.  
 RP  
 RX MEDLINE=75133461; PubMed=1123321;  
 RA Yamasaki N., Shimanaka J., Sonenburg M.;  
 RT "Studies on the common active site of growth hormone. Revision of the  
 RT amino acid sequence of an active fragment of bovine growth hormone.";   
 RL J. Biol. Chem. 250:2510-2514(1975).  
 RN [12]  
 RN 3D-STRUCTURE MODELING.  
 RP  
 RX MEDLINE=91214979; PubMed=2021631;  
 RA Carliacci L., Chou K.-C., Maggiora G.M.;  
 RT "A heuristic approach to predicting the tertiary structure of bovine  
 RT somatotropin.";   
 RL Biochemistry 30:4389-4398(1991).  
 CC CC -!- FUNCTION: GROWTH HORMONE PLAYS AN IMPORTANT ROLE IN GROWTH  
 CC CONTROL.

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CC -|- SUBCELLULAR LOCATION: Secreted.
CC -|- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.
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CC -----
DR EMBL; J00008; AAA30542.1; -
DR EMBL; V00111; CAA23445.1; -
DR EMBL; M27325; AAA30543.1; -
DR EMBL; M57764; AAA30544.1; -
DR EMBL; M23813; AAA30556.1; -
DR EMBL; AF034386; AAB92549.1; -
DR EMBL; M11558; AAA30545.1; -
DR EMBL; A08489; CAA00787.1; -
DR PIR; A01515; STBO.
DR PDB; 1B5T; 15-OCT-94.
DR InterPro; IPR001400; SOMATOTROPIN.
DR PRINTS; PR00836; SOMATOTROPIN.
DR PROSITE; PS00266; SOMATOTROPIN_1; 1.
DR PROSITE; PS00338; SOMATOTROPIN_2; 1.
KW Hormone; Pituitary; Signal; Polymorphism; 3D-structure.
FT SIGNAL 1 27
FT CHAIN 28 217 SOMATOTROPIN.
FT DISULFID 79 190
FT VARIANT 153 153 L -> V (IN 30% OF THE MOLECULES).
FT CONFLICT 95 95 Q -> E (IN REF. 8).
FT CONFLICT 110 121 QSWLGPLQLSR -> SQWLQPGFLR (IN REF. 8).
FT CONFLICT 194 194 D -> N (IN REF. 8).
SQ SEQUENCE 217 AA; 24558 MW; 99ED8D01B852EF89 CRC64;

Query Match 8.1%; Score 11; DB 1; Length 217;
Best Local Similarity 100.0%; Pred. No. 0.001;
Matches 11; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Oy 74 LELLRISLLLI 84
Db 99 LELLRISLLLI 109
|||||
|1|

RESULT 10
SOMA_BUBBU
ID SOMA_BUBBU STANDARD; PRT; 217 AA.
AC O18938;
DT 16-OCT-2001 (Rel. 40, Created)
DT 16-OCT-2001 (Rel. 40, Last sequence update)
DT 16-OCT-2001 (Rel. 40, Last annotation update)
DE Somatotropin precursor (Growth hormone).
GN GH1 OR GH.
OS Bubalus bubalis (Domestic water buffalo).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Bovidae; Bovinae; Bubalus.
OX NCBI_TaxID=89462;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=Blood;
RA Tiwari G., Garg L.C.;
RT "Cloning and characterization of growth hormone encoding gene in
RT Bubalus bubalis."
RL Submitted (SEP-1998) to the EMBL/GenBank/DBJ databases.
CC -|- FUNCTION: GROWTH HORMONE PLAYS AN IMPORTANT ROLE IN GROWTH
CC CONTROL.
CC -|- SUBCELLULAR LOCATION: Secreted.
CC -|- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.
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CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL; J00008; AAA30542.1; -
DR EMBL; V00111; CAA23445.1; -
DR EMBL; M27325; AAA30543.1; -
DR EMBL; M57764; AAA30544.1; -
DR EMBL; M23813; AAA30556.1; -
DR EMBL; AF034386; AAB92549.1; -
DR EMBL; M11558; AAA30545.1; -
DR EMBL; A08489; CAA00787.1; -
DR PIR; A01515; STBO.
DR PDB; 1B5T; 15-OCT-94.
DR InterPro; IPR001400; SOMATOTROPIN.
DR PRINTS; PR00836; SOMATOTROPIN.
DR PROSITE; PS00266; SOMATOTROPIN_1; 1.
DR PROSITE; PS00338; SOMATOTROPIN_2; 1.
KW Hormone; Pituitary; Signal; Polymorphism; 3D-structure.
FT SIGNAL 1 27
FT CHAIN 28 217 SOMATOTROPIN.
FT DISULFID 79 190
FT VARIANT 153 153 L -> V (IN 30% OF THE MOLECULES).
FT CONFLICT 95 95 Q -> E (IN REF. 8).
FT CONFLICT 110 121 QSWLGPLQLSR -> SQWLQPGFLR (IN REF. 8).
FT CONFLICT 194 194 D -> N (IN REF. 8).
SQ SEQUENCE 217 AA; 24558 MW; 99ED8D01B852EF89 CRC64;
```

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CC -----
DR EMBL; AJ011533; CAA09679.1; -
DR EMBL; AJ011514; CAA09668.1; -
DR EMBL; AJ011513; CAA09667.1; -
DR EMBL; AJ000549; CAA04181.1; -
DR HSP; P01246; IBST.
DR InterPro; IPR001400; SOMATOTROPIN.
DR PRINTS; PR00836; SOMATOTROPIN.
DR PROSITE; PS00266; SOMATOTROPIN_1; 1.
DR PROSITE; PS00338; SOMATOTROPIN_2; 1.
KW Hormone; Pituitary; Signal.
FT SIGNAL 1 27 BY SIMILARITY.
FT CHAIN 28 217 SOMATOTROPIN.
FT DISULFID 79 190 BY SIMILARITY.
FT DISULFID 207 215 BY SIMILARITY.
SQ SEQUENCE 217 AA; 24618 MW; 453547080E9B54EB CRC64;

Query Match 8.1%; Score 11; DB 1; Length 217;
Best Local Similarity 100.0%; Pred. No. 0.001;
Matches 11; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Oy 74 LELLRISLLLI 84
Db 99 LELLRISLLLI 109
|||||
|1|

RESULT 11
SOMA_CEREL
ID SOMA_CEREL STANDARD; PRT; 217 AA.
AC P56437;
DT 15-JUL-1998 (Rel. 36, Created)
DT 15-JUL-1998 (Rel. 36, Last sequence update)
DT 15-JUL-1998 (Rel. 36, Last annotation update)
DE Somatotropin precursor (Growth hormone).
GN GH1.
OS Cervus elaphus (Red deer).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Cervidae;
OC Cervidae; Cervinae; Cervus.
OX NCBI_TaxID=9860;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=Tongue;
RA Lioupis A., Wallis O.C., Wallis M.;
RL Submitted (MAY-1997) to the EMBL/GenBank/DBJ databases.
CC -|- FUNCTION: GROWTH HORMONE PLAYS AN IMPORTANT ROLE IN GROWTH
CC CONTROL.
CC -|- SUBCELLULAR LOCATION: Secreted.
CC -|- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.
CC -----
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CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL; Y12578; CAA73158.1; -
DR HSP; P01246; IBST.
DR InterPro; IPR001400; SOMATOTROPIN.
DR PRINTS; PR00836; SOMATOTROPIN.
DR PROSITE; PS00266; SOMATOTROPIN_1; 1.
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```
DR PROSITE: PS00338: SOMATOTROPIN_2; 1.
KW Hormone; Pituitary; Signal.
FT SIGNAL 1 27 BY SIMILARITY.
FT CHAIN 28 217 SOMATOTROPIN.
FT DISULFID 79 190 BY SIMILARITY.
FT DISULFID 207 215 BY SIMILARITY.
SQ SEQUENCE 217 AA; 24558 MW; 6F22D5241468B7AD CRC64;

Query Match      8.1%; Score 11; DB 1; Length 217;
Best Local Similarity 100.0%; Pred. No. 0.001;
Matches 11; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 74 LELLRLSLLLI 84
    | | | | | | | | | |
Db 99 LELLRLSLLLI 109

RESULT 12
SOMA_SHEEP
ID SOMA_SHEEP STANDARD; PRT; 217 AA.
AC P01247; P07289; Q29404;
DT 21-JUL-1986 (Rel. 01, Created)
DT 01-NOV-1988 (Rel. 09, Last sequence update)
DT 16-OCT-2001 (Rel. 40, Last annotation update)
DE Somatotropin precursor (Growth hormone).
GN GH1.
OS Ovis aries (Sheep),
OS Capra hircus (Goat), and
OS Bubalus bubalis (Domestic water buffalo).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Bovidae; Caprinae; Ovis.
OX NCBI_TaxID=9940, 9925, 89462;
RN [1]
RP SEQUENCE FROM N.A.
RC SPECIES=Sheep.
RX MEDLINE=89016583; PubMed=3174441;
RA Orian J.M., O'Mahoney J.V., Brandon M.R.;
RT "Cloning and sequencing of the ovine growth hormone gene.";
RL Nucleic Acids Res. 16:9046-9046(1988).
RN [2]
RP SEQUENCE FROM N.A.
RC SPECIES=Sheep.
RX MEDLINE=89287334; PubMed=2660907;
RA Warwick J.M., Wallis O.C., Wallis M.;
RT "Cloning, sequence and expression in Escherichia coli of cDNA for
ovine pregrowth hormone.";
RL Biochim. Biophys. Acta 1008:247-250(1989).
RN [3]
RP SEQUENCE FROM N.A.
RC SPECIES=Sheep.
RX MEDLINE=88266619; PubMed=3453044;
RA Byrne C.R., Wilson B.W., Ward K.A.;
RT "The isolation and characterisation of the ovine growth hormone
gene.";
RL Aust. J. Biol. Sci. 40:459-468(1987).
RN [4]
RP SEQUENCE FROM N.A.
RC SPECIES=Sheep; TISSUE=Pituitary;
RX MEDLINE=93093692; PubMed=1459643;
RA Guron C., Rao K.B., Jain S.K., Totey S.M., Talwar G.P.;
RT "Cloning and nucleotide sequencing of sheep growth hormone cDNA.";
RL Indian J. Exp. Biol. 30:659-663(1992).
RN [5]
RP SEQUENCE FROM N.A.
RC SPECIES=Sheep; STRAIN=AWASSI;
RA Ofir R., Gootwine E.;
RL Submitted (JUL-1997) to the EMBL/genbank/DBJ databases.
RN [6]
RP SEQUENCE OF 28-217.
RC SPECIES=Sheep.
RX MEDLINE=73220070; PubMed=4736985;

Li C.H., Gordon D., Knorr J.;
"The primary structure of sheep pituitary growth hormone.";
Arch. Biochem. Biophys. 156:493-508(1973).
[7]
SEQUENCE OF 150-217.
RC SPECIES=Sheep;
RX MEDLINE=72134042; PubMed=5062423;
RA Bellair J.T.;
"Ovine growth hormone. Sequence of the C-terminal 68 amino acids.";
RL Biochem. Biophys. Res. Commun. 46:1128-1134(1972).
RN [8]
RP SEQUENCE FROM N.A.
RC SPECIES=C.hircus; STRAIN=SAANEN;
RX MEDLINE=88137627; PubMed=3342884;
RA Yamano Y., Oyabayashi K., Okuno M., Yato M., Kioka N., Manabe E.,
Hashi H., Sakai H., Komano T., Utsumi K., Iritani A.;
"Cloning and sequencing of cDNA that encodes goat growth hormone.";
RL FEBS Lett. 228:301-304(1988).
RN [9]
RP SEQUENCE FROM N.A.
RC SPECIES=C.hircus;
RX MEDLINE=88233947; PubMed=3375065;
RA Yato M., Yamano Y., Oyabayashi K., Okuno M., Kioka N., Manabe E.,
Hashi H., Sakai H., Komano T., Utsumi K., Iritani A.;
"Nucleotide sequence of the growth hormone gene cDNA from goat Capra
hircus L. (Tokara).";
RL Nucleic Acids Res. 16:3578-3578(1988).
RN [10]
RP SEQUENCE FROM N.A.
RC SPECIES=C.hircus;
RX MEDLINE=88233947; PubMed=3375065;
RA Kioka N., Manabe E., Abe M., Hashi H., Yato M., Okuno M., Yamano Y.,
Sakai H., Komano T., Utsumi K., Iritani A.;
"Cloning and sequencing of goat growth hormone gene.";
RL Agric. Biol. Chem. 53:1583-1587(1989).
RN [11]
RP SEQUENCE FROM N.A.
RC SPECIES=B.bubalis;
RA Verma S., Garg L.C.;
RL Submitted (MAR-1993) to the EMBL/GenBank/DBJ databases.
CC -!- FUNCTION: GROWTH HORMONE PLAYS AN IMPORTANT ROLE IN GROWTH
CONTROL.
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.
CC
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CC
CC EMBL; X12546; CAA31063.1; -
CC EMBL; X15976; CAA34098.1; -
CC EMBL; S50877; AAB24467.2; -
CC EMBL; M37310; AAA31527.1; -
CC EMBL; AF002113; AAB63273.1; -
CC EMBL; AF002111; AAB63273.1; JOINED.
CC EMBL; AF002112; AAB63273.1; JOINED.
CC EMBL; Y00767; CAA68736.1; -
CC EMBL; X07035; CAA30083.1; -
CC EMBL; D00476; BAA00368.1; -
CC EMBL; X72947; CAA51450.1; -
CC EMBL; A09118; CAA00828.1; -
CC PIR; S02225; STSH.
CC PIR; S00321; STGT.
CC PIR; S00681; S00681.
CC PIR; J00031; J00031.
CC PIR; S32682; S32682.
CC HSSP; P01246; 1BST.
CC InterPro; IPR001400; SOMATOTROPIN.
CC Pfam; PF00103; hormone; 1.
CC PRINTS; PR00836; SOMATOTROPIN.
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DR PROSITE; PS00266; SOMATOTROPIN\_1; 1.  
 DR PROSITE; PS00338; SOMATOTROPIN\_2; 1.  
 KW Hormone; Pituitary; Signal.  
 FT SIGNAL 1 27 SOMATOTROPIN.  
 FT CHAIN 28 217  
 FT DISULFID 79 190  
 FT DISULFID 207 215  
 FT CONFLICT 89 89 G -> S (IN REF. 3).  
 FT CONFLICT 125 125 N -> D (IN REF. 6).  
 FT CONFLICT 134 134 R -> L (IN REF. 3).  
 FT CONFLICT 173 173 T -> R (IN REF. 4).  
 FT CONFLICT 173 173  
 SQ SEQUENCE 217 AA; 24630 MW; 77EC37A102584429 CRC64;

Query Match 8.1%; Score 11; DB 1; Length 217;  
 Best Local Similarity 100.0%; Pred. No. 0.001;  
 Matches 11; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 74 LELLRISLLLI 84  
 |||||  
 DB 99 LELLRISLLLI 109

RESULT 13  
 SOMA\_BALBO STANDARD; PRT; 190 AA.  
 AC P33092;  
 DT 01-OCT-1993 (Rel. 27, Created)  
 DT 01-OCT-1993 (Rel. 27, Last sequence update)  
 DT 15-DEC-1998 (Rel. 37, Last annotation update)  
 DE Somatotropin (Growth hormone).  
 GN GHL.  
 OS Baleenoptera borealis (Sei whale).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Cetartiodactyla; Cetacea; Mysticeti;  
 OC Baleenopteridae; Baleenoptera.  
 OX NCBI\_TaxID=9768;  
 RN [1]  
 RP SEQUENCE  
 RX MEDLINE=83000569; PubMed=7115813;  
 RA Yudaev N.A., Pankov Y.A., Bulatov A.A., Osipova T.A.;  
 RT "Amino acid sequence of seiwhale somatotropin.";  
 RL Biochimia 47:1059-1069(1982).  
 RN [2]  
 RP PRELIMINARY PARTIAL SEQUENCE  
 RA Osipova T.A., Bulatov A.A., Pankov Y.A.;  
 RT "Structural studies of tryptic peptides from large cyanogen bromide  
 fragments of sei whale (Balaenoptera borealis) somatotropin.";  
 RL Bioorg. Khim. 4:1589-1599(1978).  
 CC -!- FUNCTION: GROWTH HORMONE PLAYS AN IMPORTANT ROLE IN GROWTH  
 CONTROL.  
 CC -!- SUBCELLULAR LOCATION: Secreted.  
 CC -!- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.  
 DR PIR; PNO140; PNO140.  
 DR PIR; JN0387; JN0387.  
 DR HSSP; P01246; 1BST.  
 DR InterPro; IPR001400; SOMATOTROPIN.  
 DR Pfam; PF00103; hormone; 1.  
 DR PRINTS; PR00836; SOMATOTROPIN.  
 DR PROSITE; PS00266; SOMATOTROPIN.  
 DR PROSITE; PS00338; SOMATOTROPIN\_1; 1.  
 DR PROSITE; PS00338; SOMATOTROPIN\_2; 1.  
 KW Hormone; Pituitary.  
 FT DISULFID 52 163 BY SIMILARITY.  
 FT DISULFID 180 188 BY SIMILARITY.  
 SQ SEQUENCE 190 AA; 21835 MW; 09FBFF6DB14A75D6 CRC64;

Query Match 6.7%; Score 9; DB 1; Length 190;  
 Best Local Similarity 100.0%; Pred. No. 0.093;  
 Matches 9; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 115 LKDLLEGIQ 123  
 |||||

DB 112 LKDLLEGIQ 120

RESULT 14  
 SOMA\_LAMPA STANDARD; PRT; 190 AA.  
 ID P37885;  
 AC 01-OCT-1994 (Rel. 30, Created)  
 DT 01-OCT-1994 (Rel. 30, Last sequence update)  
 DT 15-DEC-1998 (Rel. 37, Last annotation update)  
 DE Somatotropin (Growth hormone).  
 GN GHL.  
 OS Lama guanicoe pacos (Alpaca).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Cetartiodactyla; Tylopoda; Camelidae; Lama.  
 OX NCBI\_TaxID=30538;  
 RN [1]  
 RP SEQUENCE  
 RX MEDLINE=92104767; PubMed=1761365;  
 RA de Jimenez Bonino M.B., de Nue I.A., Ore R., Sanchez D., Ferrara P.,  
 Capdevielle J., Cascone O.;  
 RT "Primary structure of alpaca growth hormone.";  
 RL Int. J. Pept. Protein Res. 38:193-197(1991).  
 CC -!- FUNCTION: GROWTH HORMONE PLAYS AN IMPORTANT ROLE IN GROWTH  
 CONTROL.  
 CC -!- SUBCELLULAR LOCATION: Secreted.  
 CC -!- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.  
 DR PIR; A61584; A61584.  
 DR HSSP; P01246; 1BST.  
 DR InterPro; IPR001400; SOMATOTROPIN.  
 DR Pfam; PF00103; hormone; 1.  
 DR PRINTS; PR00836; SOMATOTROPIN.  
 DR PROSITE; PS00266; SOMATOTROPIN\_1; 1.  
 DR PROSITE; PS00338; SOMATOTROPIN\_2; 1.  
 KW Hormone; Pituitary.  
 FT DISULFID 52 163 BY SIMILARITY.  
 FT DISULFID 180 188 BY SIMILARITY.  
 SQ SEQUENCE 190 AA; 21789 MW; A7C67266A8B96A10 CRC64;

Query Match 6.7%; Score 9; DB 1; Length 190;  
 Best Local Similarity 100.0%; Pred. No. 0.093;  
 Matches 9; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 115 LKDLLEGIQ 123  
 |||||

RESULT 15  
 SOMA\_LOXAF STANDARD; PRT; 190 AA.  
 ID P20392;  
 AC 01-FEB-1991 (Rel. 17, Created)  
 DT 01-FEB-1991 (Rel. 17, Last sequence update)  
 DT 15-DEC-1998 (Rel. 37, Last annotation update)  
 DE Somatotropin (Growth hormone).  
 GN GHL.  
 OS Loxodonta africana (African elephant).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Proboscidea; Elephantidae; Loxodonta.  
 OX NCBI\_TaxID=9785;  
 RN [1]  
 RP SEQUENCE  
 RA Hulmes J.D., Miedel M.C., Li C.H., Pan Y.C.E.;  
 RT "Primary structure of elephant growth hormone.";  
 RL Int. J. Pept. Protein Res. 33:368-372(1989).  
 CC -!- FUNCTION: GROWTH HORMONE PLAYS AN IMPORTANT ROLE IN GROWTH  
 CONTROL.  
 CC -!- SUBCELLULAR LOCATION: Secreted.  
 CC -!- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.  
 DR PIR; JK0219; JK0219.  
 DR HSSP; P01246; 1BST.

DR InterPro; IPR001400; SOMATOTROPIN.  
DR Pfam; PF001103; hormone; 1.  
DR PRINTS; PR00836; SOMATOTROPIN.  
DR PROSITE; PS00266; SOMATOTROPIN\_1; 1.  
DR PROSITE; PS00338; SOMATOTROPIN\_2; 1.  
KW Hormone; Pituitary.  
FT DISULFID 52 163 BY SIMILARITY.  
FT DISULFID 180 188 BY SIMILARITY.  
SQ SEQUENCE 190 AA; 21761 MW; 05B860813DB741F2 CRC64;

Query Match 6.7%; Score 9; DB 1; Length 190;  
Best Local Similarity 100.0%; Pred. No. 0.093;  
Matches 9; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 115 LKDLEEGIQ 123  
| | | | | | | |  
Db 112 LKDLEEGIQ 120

Search completed: September 25, 2002, 10:09:45  
Job time: 233 sec



GenCore version 4.5  
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OM protein - protein search, using sw model

Run on: September 25, 2002, 10:05:37 ; Search time 26.99 Seconds  
(without alignments)  
865.295 Million cell updates/sec

Title: US-09-819-094-18  
Perfect score: 135  
Sequence: 1 MVQTVPLSRFLHMLQAH.....KDLGEGTQTLGRLDGSPR 135

Scoring table: OLIGO  
Gapop 60.0 , Gapext 60.0

Searched: 562222 seqs, 172994929 residues

Word size : 0

Total number of hits satisfying chosen parameters: 562222

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Listing first 1000 summaries

Database : SPTREMBL19.\*  
1: sp\_archaea.\*  
2: sp\_bacteria.\*  
3: sp\_fungi.\*  
4: sp\_human.\*  
5: sp\_invertebrate.\*  
6: sp\_mammal.\*  
7: sp\_mhc.\*  
8: sp\_organelle.\*  
9: sp\_phage.\*  
10: sp\_plant.\*  
11: sp\_rodent.\*  
12: sp\_virus.\*  
13: sp Vertebrate.\*  
14: sp\_unclassified.\*  
15: sp\_virus.\*  
16: sp\_bacteriap.\*  
17: sp\_archaeap.\*

Pred. No. is the number of results predicted by chance to have a  
score greater than or equal to the score of the result being printed,  
and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match %	Length	DB ID	Description
1	79	58.5	167	4	P78451
2	79	58.5	217	4	Q14407
3	24	17.8	199	4	Q14406
4	22	16.3	217	4	Q16631
5	19	14.1	171	4	Q9UNL5
6	19	14.1	179	4	Q9HB21
7	19	14.1	212	6	Q07368
8	19	14.1	217	6	Q07367
9	19	14.1	217	6	Q07369
10	17	12.6	202	4	Q14643
11	17	12.6	245	4	Q14644
12	11	8.1	45	6	Q9TSF9
13	11	8.1	110	6	Q9N265
14	11	8.1	120	6	Q9TSG0
15	11	8.1	192	6	Q9TQW9
16	11	8.1	192	6	Q9TU21

Q95205 ovis aries  
Q9bec0 tragulus ja  
Q9beb9 tragulus ja  
Q9pu72 cynops pyrr  
Q90we4 gallus gall  
Q95240 canis famli  
Q9bdr4 galago cras  
Q91kg0 cavia porce  
Q92c3 spalax leuc  
Q92c3 mus musculu  
Q91km4 cavia porce  
Q28957 sus scrofa  
Q9pvc8 amla calva  
Q91386 amla calva  
Q98rn8 guillardia  
Q9agw5 nostoc punc  
Q9rcv5 deinococcus  
P91450 caenorhabdi  
Q9k8w6 bacillus ha  
Q970n8 sulfolobus  
Q9rvw2 deinococcus  
Q95mj6 tarsius syr  
Q95mj5 tarsius ban  
Q97qv9 streptococc  
Q96ul6 neurospora  
Q91p14 arabidopsis  
Q9sly5 musa acumin  
Q9sly4 musa acumin  
Q9nq85 homo sapien  
Q9nu52 homo sapien  
Q42923 musa acumin  
Q75783 homo sapien  
Q9nu57 pseudomonas  
Q75449 homo sapien  
Q9wv86 mus musculu  
Q91jz7 arabidopsis  
Q9h257 homo sapien  
Q9a8m1 caulobacter  
Q64015 bacterioph  
Q32006 bacillus su  
Q912n0 pseudomonas  
Q74845 schizosacch  
Q9vzv7 drosophila  
Q91v74 arabidopsis  
Q9ass4 arabidopsis  
Q91xb1 mus musculu  
Q9fy05 populus tre  
Q9h320 homo sapien  
Q9a737 caulobacter  
Q9h7p3 homo sapien  
Q9m9x9 arabidopsis  
Q9nv68 homo sapien  
Q9btb9 homo sapien  
Q9hty4 homo sapien  
Q9hat9 homo sapien  
Q9hbg6 homo sapien  
Q9hbg5 homo sapien  
Q9vxl1 drosophila  
Q960d0 drosophila  
Q93ty6 staphylococ  
Q9s9c3 arabidopsis  
Q88381 mus musculu  
Q28899 bos taurus  
Q50155 mycobacteri  
Q98dn8 rhizobium 1  
Q94t08 paramacium  
Q948w1 physcomitre  
Q98811 human herpe  
Q9m5s1 ipomoea bat  
Q9m5f8 ipomoea bat  
Q91c18 antheraea p  
Q9bsc2 homo sapien  
Q26175 methanother

90	6	4.4	90	11	Q63499	Q63499	rattus norv	163	6	4.4	185	2	Q9Z644	Q9Z644	pantoea cit
91	6	4.4	91	12	Q85424	Q85424	rabbit rota	164	6	4.4	185	16	Q9AB10	Q9AB10	caulobacter
92	6	4.4	91	16	Q9PKY1	Q9PKY1	chlamydia m	165	6	4.4	185	16	Q9HU05	Q9HU05	pseudomonas
93	6	4.4	103	16	Q9PRV2	Q9PRV2	staphylococ	166	6	4.4	185	16	Q92DF2	Q92DF2	listeria in
94	6	4.4	104	2	Q93D04	Q93D04	uncultured	167	6	4.4	187	5	Q95PB8	Q95PB8	anophelles q
95	6	4.4	104	16	Q34975	Q34975	bacillus su	168	6	4.4	190	2	P94222	P94222	borrelia bu
96	6	4.4	106	17	Q97323	Q97323	sulfolobus	169	6	4.4	190	10	Q9C737	Q9C737	arabidopsis
97	6	4.4	109	2	Q9EW6	Q9EW6	staphylococ	170	6	4.4	190	12	Q993H4	Q993H4	callitrichi
98	6	4.4	109	16	Q99V47	Q99V47	staphylococ	171	6	4.4	192	8	Q94S36	Q94S36	daucus caro
99	6	4.4	109	16	Q92GC8	Q92GC8	rickettsia	172	6	4.4	192	16	Q9HTU3	Q9HTU3	pseudomonas
100	6	4.4	111	3	Q9HFQ4	Q9HFQ4	candida alb	173	6	4.4	196	4	Q9UJW9	Q9UJW9	homo sapien
101	6	4.4	112	16	Q92HS2	Q92HS2	rickettsia	174	6	4.4	196	4	Q96C02	Q96C02	homo sapien
102	6	4.4	115	8	Q36868	Q36868	sceloporus	175	6	4.4	197	11	Q9ERC3	Q9ERC3	mus musculu
103	6	4.4	115	8	Q21740	Q21740	calomys lau	176	6	4.4	198	12	Q9EBF2	Q9EBF2	bovine rota
104	6	4.4	115	8	Q35851	Q35851	sceloporus	177	6	4.4	199	2	Q9S001	Q9S001	helicobacte
105	6	4.4	115	8	Q35854	Q35854	sceloporus	178	6	4.4	199	2	Q30616	Q30616	myxococcus
106	6	4.4	115	8	Q35857	Q35857	sceloporus	179	6	4.4	199	2	Q9LCT2	Q9LCT2	bradyrhizob
107	6	4.4	117	4	Q9UL69	Q9UL69	homo sapien	180	6	4.4	199	11	Q9D079	Q9D079	mus musculu
108	6	4.4	117	17	Q972E8	Q972E8	sulfolobus	181	6	4.4	200	12	Q89517	Q89517	human rotav
109	6	4.4	120	2	Q93R08	Q93R08	streptococ	182	6	4.4	200	12	Q89573	Q89573	human rotav
110	6	4.4	120	16	Q92I14	Q92I14	rickettsia	183	6	4.4	200	12	Q82014	Q82014	human rotav
111	6	4.4	121	10	Q9FXV2	Q9FXV2	quercus acu	184	6	4.4	200	12	Q82091	Q82091	human rotav
112	6	4.4	124	16	Q9X211	Q9X211	thermotoga	185	6	4.4	201	16	Q95Q92	Q95Q92	spodoptera
113	6	4.4	127	5	Q9V198	Q9V198	drosophila	186	6	4.4	204	3	O74257	O74257	ureaplasma
114	6	4.4	127	5	Q26450	Q26450	hirudo medi	187	6	4.4	204	16	Q9KAP7	Q9KAP7	pichia past
115	6	4.4	129	5	Q26448	Q26448	hirudo medi	188	6	4.4	205	2	P94602	P94602	clostridium
116	6	4.4	133	3	Q9U0I9	Q9U0I9	schizosacch	189	6	4.4	205	2	Q9HAP3	Q9HAP3	homo sapien
117	6	4.4	135	12	Q81849	Q81849	human papil	190	6	4.4	205	4	Q9CX92	Q9CX92	mus musculu
118	6	4.4	137	2	Q9S127	Q9S127	escherichia	191	6	4.4	205	11	Q9CX92	Q9CX92	mus musculu
119	6	4.4	137	4	Q9H4X1	Q9H4X1	homo sapien	192	6	4.4	205	12	Q67476	Q67476	flexal viru
120	6	4.4	139	2	Q33636	Q33636	staphylococ	193	6	4.4	206	12	Q65297	Q65297	anapari vir
121	6	4.4	139	16	Q99V42	Q99V42	staphylococ	194	6	4.4	206	12	Q67690	Q67690	guararito v
122	6	4.4	140	12	Q88927	Q88927	tobacco vei	195	6	4.4	206	12	O11881	O11881	guararito v
123	6	4.4	144	11	Q63307	Q63307	rattus norv	196	6	4.4	206	12	O11882	O11882	guararito v
124	6	4.4	146	10	Q41182	Q41182	nicotiana t	197	6	4.4	206	12	Q9Q4T0	Q9Q4T0	guararito v
125	6	4.4	153	10	P93275	P93275	arabidopsis	198	6	4.4	206	12	Q9Q4S9	Q9Q4S9	guararito v
126	6	4.4	154	8	Q957T3	Q957T3	abies alba	199	6	4.4	206	12	Q9Q4S8	Q9Q4S8	guararito v
127	6	4.4	155	8	Q79057	Q79057	aphidius er	200	6	4.4	206	12	Q9Q4S7	Q9Q4S7	guararito v
128	6	4.4	155	8	Q79058	Q79058	aphidius ma	201	6	4.4	206	12	Q9Q4S6	Q9Q4S6	guararito v
129	6	4.4	155	8	Q79059	Q79059	aphidius pi	202	6	4.4	206	12	Q9Q4S5	Q9Q4S5	guararito v
130	6	4.4	155	8	Q79060	Q79060	aphidius pi	203	6	4.4	206	12	Q9Q4S4	Q9Q4S4	guararito v
131	6	4.4	155	8	Q79061	Q79061	aphidius pi	204	6	4.4	206	12	Q9Q4S3	Q9Q4S3	guararito v
132	6	4.4	155	8	Q79062	Q79062	aphidius sm	205	6	4.4	206	12	Q9Q4S2	Q9Q4S2	guararito v
133	6	4.4	155	8	Q79063	Q79063	aphidius so	206	6	4.4	206	12	Q9Q4S1	Q9Q4S1	guararito v
134	6	4.4	155	8	Q79070	Q79070	pauesia sp	207	6	4.4	206	12	Q9Q4S0	Q9Q4S0	guararito v
135	6	4.4	155	8	Q79071	Q79071	pauesia sil	208	6	4.4	206	12	Q9Q4R9	Q9Q4R9	guararito v
136	6	4.4	155	10	Q9FXT0	Q9FXT0	nicotiana t	209	6	4.4	206	12	Q9Q4R8	Q9Q4R8	guararito v
137	6	4.4	157	4	Q9H7V6	Q9H7V6	homo sapien	210	6	4.4	206	12	Q9Q4R7	Q9Q4R7	guararito v
138	6	4.4	157	6	Q9BE14	Q9BE14	macaca fasc	211	6	4.4	206	12	Q9Q4R6	Q9Q4R6	guararito v
139	6	4.4	157	16	Q9JYK9	Q9JYK9	neisseria m	212	6	4.4	206	12	Q9Q4R5	Q9Q4R5	guararito v
140	6	4.4	160	9	Q64019	Q64019	bacterioph	213	6	4.4	206	12	Q9Q4R4	Q9Q4R4	guararito v
141	6	4.4	160	16	Q32002	Q32002	bacillus su	214	6	4.4	206	12	Q9Q4R3	Q9Q4R3	guararito v
142	6	4.4	162	2	Q9WU09	Q9WU09	pseudomonas	215	6	4.4	206	12	Q9Q4R2	Q9Q4R2	guararito v
143	6	4.4	162	10	Q9SKN0	Q9SKN0	arabidopsis	216	6	4.4	206	12	Q9Q4R1	Q9Q4R1	guararito v
144	6	4.4	164	11	Q88779	Q88779	rattus norv	217	6	4.4	206	12	Q9Q4R0	Q9Q4R0	guararito v
145	6	4.4	166	3	Q9Y7N3	Q9Y7N3	schizosacch	218	6	4.4	206	12	Q9Q4Q9	Q9Q4Q9	guararito v
146	6	4.4	166	8	Q957S7	Q957S7	pinus mugu	219	6	4.4	206	12	Q9Q4Q8	Q9Q4Q8	guararito v
147	6	4.4	166	8	Q957S6	Q957S6	pinus sylve	220	6	4.4	206	12	Q9Q4Q7	Q9Q4Q7	guararito v
148	6	4.4	167	5	Q95877	Q95877	drosophila	221	6	4.4	206	12	Q9Q4Q6	Q9Q4Q6	guararito v
149	6	4.4	168	2	Q9R7V2	Q9R7V2	yersinia pe	222	6	4.4	206	12	Q9Q4Q5	Q9Q4Q5	guararito v
150	6	4.4	169	5	Q25990	Q25990	plasmodium	223	6	4.4	206	12	Q9Q4Q4	Q9Q4Q4	guararito v
151	6	4.4	170	12	P87604	P87604	cowpox viru	224	6	4.4	206	12	Q9Q4Q3	Q9Q4Q3	guararito v
152	6	4.4	172	5	Q23556	Q23556	caenorhabdi	225	6	4.4	206	12	Q9Q4Q2	Q9Q4Q2	guararito v
153	6	4.4	174	16	Q9WXP3	Q9WXP3	thermotoga	226	6	4.4	209	2	Q49583	Q49583	borrelia ga
154	6	4.4	175	5	Q9N3R7	Q9N3R7	caenorhabdi	227	6	4.4	210	16	Q97PD4	Q97PD4	streptococc
155	6	4.4	175	5	Q9BJF0	Q9BJF0	plasmodium	228	6	4.4	211	16	Q97L73	Q97L73	clostridium
156	6	4.4	177	2	Q9R2I9	Q9R2I9	shigella so	229	6	4.4	211	17	Q973Y4	Q973Y4	sulfolobus
157	6	4.4	177	2	Q25342	Q25342	salmonella	230	6	4.4	211	17	Q96I7Z1	Q96I7Z1	sulfolobus
158	6	4.4	178	5	Q02415	Q02415	agrius conv	231	6	4.4	212	4	Q9H9U9	Q9H9U9	homo sapien
159	6	4.4	179	16	Q9AB56	Q9AB56	caulobacter	232	6	4.4	212	4	O68758	O68758	yersinia pe
160	6	4.4	182	5	O00832	O00832	plasmodium	233	6	4.4	214	2	Q934T7	Q934T7	salmonella
161	6	4.4	183	3	Q74333	Q74333	schizosacch	234	6	4.4	215	12	Q908N5	Q908N5	myxoma viru
162	6	4.4	184	2	Q9ZF29	Q9ZF29	yersinia pe	235	6	4.4	216	4	Q9NTU8	Q9NTU8	homo sapien

Q9Z644	pantoea cit
Q9AB10	caulobacter
Q9HU05	pseudomonas
Q92DF2	listeria in
Q95PB8	anophelles q
P94222	borrelia bu
Q9C737	arabidopsis
Q993H4	callitrichi
Q94S36	daucus caro
Q9HTU3	pseudomonas
Q9UJW9	homo sapien
Q96C02	homo sapien
Q9ERC3	mus musculu
Q9EBF2	bovine rota
Q9S001	helicobacte
Q30616	myxococcus
Q9LCT2	bradyrhizob
Q9D079	mus musculu
Q89517	human rotav
Q89573	human rotav
Q82014	human rotav
Q82091	human rotav
Q91810	spodoptera
Q95Q92	ureaplasma
O74257	pichia past
P94602	clostridium
Q9HAP3	homo sapien
Q9CX92	mus musculu
Q67476	flexal viru
Q65297	anapari vir
Q67690	guararito v
O11881	guararito v
O11882	guararito v
Q9Q4T0	guararito v
Q9Q4S9	guararito v
Q9Q4S8	guararito v
Q9Q4S7	guararito v
Q9Q4S6	guararito v
Q9Q4S5	guararito v
Q9Q4S4	guararito v
Q9Q4S3	guararito v
Q9Q4S2	guararito v
Q9Q4S1	guararito v
Q9Q4S0	guararito v
Q9Q4R9	guararito v
Q9Q4R8	guararito v
Q9Q4R7	guararito v
Q9Q4R6	guararito v
Q9Q4R5	guararito v
Q9Q4R4	guararito v
Q9Q4R3	guararito v
Q9Q4R2	guararito v
Q9Q4R1	guararito v
Q9Q4R0	guararito v
Q9Q4Q9	guararito v
Q9Q4Q8	guararito v
Q9Q4Q7	guararito v
Q9Q4Q6	guararito v
Q9Q4Q5	guararito v
Q9Q4Q4	guararito v
Q9Q4Q3	guararito v
Q9Q4Q2	guararito v
Q49583	borrelia ga
Q97PD4	streptococc
Q97L73	clostridium
Q973Y4	sulfolobus
Q96I7Z1	sulfolobus
Q9H9U9	homo sapien
O68758	yersinia pe
Q934T7	salmonella
Q908N5	myxoma viru
Q9NTU8	homo sapien

236	6	4.4	216	11	Q9JHK3	Q9jhk3 mus musculus	309	6	4.4	268	8	Q9TGQ3	Q9tgq3 cnemidophor
237	6	4.4	217	11	Q9D0N1	Q9d0n1 mus musculus	310	6	4.4	268	8	Q9TGR0	Q9tgr0 cnemidophor
238	6	4.4	219	2	Q56931	Q56931 versinia en	311	6	4.4	268	8	Q956Q6	Q956q6 cnemidophor
239	6	4.4	219	16	Q9PGM0	Q9pgm0 xylella fas	312	6	4.4	268	11	Q63773	Q63773 rattus norv
240	6	4.4	220	10	Q9C6F4	Q9c6f4 arabadopsis	313	6	4.4	268	16	Q25445	Q25445 helicobacte
241	6	4.4	223	8	Q9TGR7	Q9tgr7 cnemidophor	314	6	4.4	269	8	Q9XKN5	Q9xkn5 cnemidophor
242	6	4.4	225	10	Q9C7Q3	Q9c7q3 arabadopsis	315	6	4.4	269	8	Q9TQ00	Q9tgq0 cnemidophor
243	6	4.4	227	8	Q9TBL6	Q9tbl6 turnix vari	316	6	4.4	269	8	Q9TGR6	Q9tgr6 cnemidophor
244	6	4.4	228	16	P74670	P74670 synechocyst	317	6	4.4	269	16	Q92J56	Q92j56 rickettsia
245	6	4.4	230	2	Q52608	Q52608 agrobacteri	318	6	4.4	270	2	O50653	O50653 paracoccus
246	6	4.4	230	10	Q22736	Q22736 arabadopsis	319	6	4.4	270	8	Q9TGR1	Q9tgr1 cnemidophor
247	6	4.4	231	13	Q9I306	Q9i306 rana catesb	320	6	4.4	270	11	Q9D794	Q9d794 mus musculus
248	6	4.4	231	17	P95952	P95952 sulfolobus	321	6	4.4	270	11	Q9D6P0	Q9d6p0 mus musculus
249	6	4.4	232	12	Q914M4	Q914m4 sulfolobus	322	6	4.4	270	11	Q9CQX3	Q9cqx3 mus musculus
250	6	4.4	233	5	Q95YJ3	Q95yj3 samia cynth	323	6	4.4	271	8	Q9TGP3	Q9tgp3 cnemidophor
251	6	4.4	233	5	Q95YJ2	Q95yj2 samia cynth	324	6	4.4	271	8	Q9TGP7	Q9tgp7 cnemidophor
252	6	4.4	235	11	Q9D6P2	Q9d6p2 mus musculus	325	6	4.4	271	8	Q9XKN4	Q9xkn4 cnemidophor
253	6	4.4	235	16	Q9Z8V3	Q9z8v3 chlamydia p	326	6	4.4	271	8	Q9TQ1	Q9tq1 cnemidophor
254	6	4.4	236	12	Q90696	Q90696 bovine herp	327	6	4.4	271	8	Q9XKN7	Q9xkn7 cnemidophor
255	6	4.4	236	16	Q9ZMP9	Q9zmp9 helicobacte	328	6	4.4	271	8	Q9TGR2	Q9tgr2 cnemidophor
256	6	4.4	236	17	O50103	O50103 pyrococcus	329	6	4.4	271	8	Q9XKN8	Q9xkn8 cnemidophor
257	6	4.4	238	16	Q99VZ8	Q99vz8 staphylococ	330	6	4.4	271	8	Q9XKN9	Q9xkn9 cnemidophor
258	6	4.4	240	5	Q9XUT5	Q9xut5 caenorhabdi	331	6	4.4	271	8	Q9XKP0	Q9xkp0 cnemidophor
259	6	4.4	240	11	Q9D4J1	Q9d4j1 mus musculus	332	6	4.4	271	8	Q9XKP2	Q9xkp2 cnemidophor
260	6	4.4	240	16	Q55896	Q55896 synechocyst	333	6	4.4	272	16	Q9KGC7	Q9kgc7 bacillus ha
261	6	4.4	241	11	Q9QYX8	Q9qym8 mus musculus	334	6	4.4	274	4	Q9H672	Q9h672 homo sapien
262	6	4.4	243	5	Q95SY9	Q95sy9 drosophila	335	6	4.4	274	16	Q97GB5	Q97gb5 clostridium
263	6	4.4	243	12	Q93501	Q93501 bovine herp	336	6	4.4	276	16	Q98WA9	Q98wa9 rhizobium l
264	6	4.4	245	10	Q9C945	Q9c945 arabadopsis	337	6	4.4	277	5	O62200	O62200 caenorhabdi
265	6	4.4	245	17	Q95069	Q95069 pyrococcus	338	6	4.4	279	13	Q9I303	Q9i303 rana catesb
266	6	4.4	247	2	Q54522	Q54522 streptococc	339	6	4.4	280	16	P96821	P96821 mycobacteri
267	6	4.4	248	10	O81405	O81405 sinapis arv	340	6	4.4	281	10	Q9SAU2	Q9sau2 arabadopsis
268	6	4.4	248	11	Q9DCN9	Q9dcn9 mus musculus	341	6	4.4	281	16	Q9CFB9	Q9cfb9 lactococcus
269	6	4.4	248	11	Q9Z211	Q9z211 mus musculus	342	6	4.4	283	5	Q21550	Q21550 caenorhabdi
270	6	4.4	249	2	Q9L184	Q9l184 streptomyce	343	6	4.4	286	5	O9NAC6	O9nac6 caenorhabdi
271	6	4.4	251	10	O81407	O81407 sinapis arv	344	6	4.4	286	17	Q9HS96	Q9hs96 halobacteri
272	6	4.4	251	10	O81408	O81408 sinapis arv	345	6	4.4	287	3	Q94246	Q94246 schizosacch
273	6	4.4	251	17	Q9YK5	Q9yk5 aeropyrum p	346	6	4.4	287	10	Q9LWB0	Q9lwb0 lycopersico
274	6	4.4	253	16	Q9JZ41	Q9jz41 neisseria m	347	6	4.4	288	2	O55924	O55924 synechocyst
275	6	4.4	253	16	Q9JU35	Q9ju35 neisseria m	348	6	4.4	288	2	O07881	O07881 staphylococ
276	6	4.4	254	11	Q9DCR0	Q9dcr0 mus musculus	349	6	4.4	290	3	Q9P5T9	Q9p5t9 neurospora
277	6	4.4	255	4	Q9BSW1	Q9bsw1 homo sapien	350	6	4.4	290	5	O9VI34	O9vi34 drosophila
278	6	4.4	255	5	Q9VQA0	Q9vqa0 drosophila	351	6	4.4	292	10	Q9LYX9	Q9lyx9 arabadopsis
279	6	4.4	255	16	Q9ZXP9	Q9zxp9 rhizobium m	352	6	4.4	293	16	Q9ZD98	Q9zd98 rickettsia
280	6	4.4	256	8	Q9TGQ6	Q9tqg6 cnemidophor	353	6	4.4	295	5	Q9USC1	Q9usc1 caenorhabdi
281	6	4.4	258	8	Q9TQG5	Q9tqg5 cnemidophor	354	6	4.4	296	11	Q9J142	Q9j142 rattus norv
282	6	4.4	261	4	Q9ULC1	Q9ulc1 homo sapien	355	6	4.4	296	16	Q982C8	Q982c8 rhizobium l
283	6	4.4	261	8	Q9TGP4	Q9tgp4 cnemidophor	356	6	4.4	296	16	Q99R56	Q99r56 staphylococ
284	6	4.4	261	8	Q956Q5	Q956q5 cnemidophor	357	6	4.4	297	5	O9N333	Q9n333 caenorhabdi
285	6	4.4	261	11	Q9R0H2	Q9r0h2 mus musculus	358	6	4.4	297	13	Q91296	Q91296 rana catesb
286	6	4.4	263	8	Q9TGP8	Q9tgp8 cnemidophor	359	6	4.4	299	12	Q91GC9	Q91gc9 epiphyas po
287	6	4.4	263	8	Q9TGP7	Q9tgp7 cnemidophor	360	6	4.4	299	16	Q92VD0	Q92vd0 rhizobium m
288	6	4.4	263	8	Q9TGP0	Q9tgp0 cnemidophor	361	6	4.4	300	4	Q9BRS1	Q9brs1 homo sapien
289	6	4.4	264	4	Q9H9Q2	Q9h9q2 homo sapien	362	6	4.4	303	16	O06484	O06484 bacillus su
290	6	4.4	264	8	Q9TGR8	Q9tgr8 cnemidophor	363	6	4.4	304	16	Q97D67	Q97d67 clostridium
291	6	4.4	264	10	Q9S0R4	Q9sur4 arabadopsis	364	6	4.4	305	10	Q9SIG0	Q9sig0 arabadopsis
292	6	4.4	264	11	Q9CXL5	Q9cxl5 mus musculus	365	6	4.4	308	2	Q9X9G6	Q9x9g6 yersinia ps
293	6	4.4	264	11	O88547	O88547 mus musculus	366	6	4.4	308	4	Q9P0E2	Q9p0e2 homo sapien
294	6	4.4	264	11	Q921G4	Q921g4 mus musculus	367	6	4.4	308	5	Q9VTP3	Q9vtp3 drosophila
295	6	4.4	265	8	Q35783	Q35783 sorghum bic	368	6	4.4	310	5	O97259	O97259 plasmodium
296	6	4.4	266	8	Q9TGP9	Q9tgp9 cnemidophor	369	6	4.4	310	10	Q9LXR5	Q9lrx5 arabadopsis
297	6	4.4	266	8	Q9TGP8	Q9tgp8 cnemidophor	370	6	4.4	310	16	O66656	O66656 aquifex aeo
298	6	4.4	266	8	Q9TGP0	Q9tgp0 cnemidophor	371	6	4.4	310	16	O66656	O66656 aquifex aeo
299	6	4.4	266	8	Q9TGR3	Q9tgr3 cnemidophor	372	6	4.4	311	2	Q9SIQ1	Q9siq1 streptomyce
300	6	4.4	266	11	Q9D1D2	Q9d1d2 mus musculus	373	6	4.4	311	4	Q9H7E4	Q9h7e4 homo sapien
301	6	4.4	266	17	Q9HIF4	Q9hif4 thermoplasm	374	6	4.4	311	10	O80628	O80628 arabadopsis
302	6	4.4	267	8	Q9XKN6	Q9xkn6 cnemidophor	375	6	4.4	311	10	O9SA03	Q9sa03 arabadopsis
303	6	4.4	267	8	Q9TGP4	Q9tgp4 cnemidophor	376	6	4.4	315	10	Q9SH70	Q9sh70 arabadopsis
304	6	4.4	267	8	Q9TGR4	Q9tgr4 cnemidophor	377	6	4.4	315	17	Q97VK4	Q97vk4 sulfolobus
305	6	4.4	267	8	Q9TGR5	Q9tgr5 cnemidophor	378	6	4.4	316	2	O9APD4	Q9apd4 thiobacillu
306	6	4.4	267	8	Q9XKP3	Q9xkp3 cnemidophor	379	6	4.4	316	10	O9C9Z6	O9c9z6 arabadopsis
307	6	4.4	268	8	Q9TGP5	Q9tgp5 cnemidophor	380	6	4.4	317	5	O95TV5	O95tv5 drosophila
308	6	4.4	268	8	Q9TGP6	Q9tgp6 cnemidophor	381	6	4.4	317	10	Q9LHC2	Q9lhc2 arabadopsis

382	6	4.4	317	16	Q91264	Q91264 pseudomonas	455	6	4.4	374	10	O82236	O82236 arabidopsis
383	6	4.4	318	6	Q9BGT9	Q9BGT9 macaca fasc	456	6	4.4	375	2	Q9AQ57	Q9AQ57 burkholderi
384	6	4.4	318	11	Q912U0	Q912U0 mus musculus	457	6	4.4	375	5	P91745	P91745 lucilia cup
385	6	4.4	320	16	Q9HYH4	Q9HYH4 pseudomonas	458	6	4.4	375	5	O9U1L4	O9U1L4 drosophila
386	6	4.4	320	17	O58066	O58066 pyrococcus	459	6	4.4	375	16	Q92LL1	Q92LL1 helicobacte
387	6	4.4	323	4	Q9H8X5	Q9H8X5 homo sapien	460	6	4.4	375	16	Q9JYU8	Q9JYU8 neisseria m
388	6	4.4	323	13	Q90XK7	Q90XK7 lepisosteus	461	6	4.4	375	16	Q9JYU0	Q9JYU0 neisseria m
389	6	4.4	324	13	Q90XL0	Q90XL0 polypterus	462	6	4.4	376	5	O967M9	O967M9 dryocoeatid
390	6	4.4	324	13	Q90XK9	Q90XK9 acipenser s	463	6	4.4	377	11	Q9JL28	Q9JL28 mus musculus
391	6	4.4	324	13	Q90XK8	Q90XK8 polyodon sp	464	6	4.4	377	11	P97327	P97327 mus musculus
392	6	4.4	324	13	Q90XJ6	Q90XJ6 latimeria m	465	6	4.4	377	11	Q920W5	Q920W5 mus musculus
393	6	4.4	325	4	Q9NSC1	Q9NSC1 homo sapien	466	6	4.4	377	11	Q920W4	Q920W4 mus spicile
394	6	4.4	326	13	Q90XK5	Q90XK5 osteoglossu	467	6	4.4	378	5	O16045	O16045 drosophila
395	6	4.4	326	13	Q90XK3	Q90XK3 gnathonemus	468	6	4.4	378	16	Q92JU6	Q92JU6 rhizobium m
396	6	4.4	326	13	Q90XK2	Q90XK2 notopterus	469	6	4.4	379	3	O59709	O59709 schizosacch
397	6	4.4	326	13	Q90XK0	Q90XK0 mugil cepha	470	6	4.4	379	4	O95610	O95610 homo sapien
398	6	4.4	326	13	Q90XJ8	Q90XJ8 pseudopleur	471	6	4.4	379	10	Q943W4	Q943W4 oryza sativ
399	6	4.4	327	17	Q97B55	Q97B55 thermoplasma	472	6	4.4	379	16	O67100	O67100 aquifex aeo
400	6	4.4	329	11	Q9D400	Q9D400 mus musculus	473	6	4.4	379	17	Q96YB1	Q96YB1 sulfolobus
401	6	4.4	329	16	Q9KS06	Q9KS06 vibrio chol	474	6	4.4	380	12	Q997H7	Q997H7 bovine aden
402	6	4.4	329	16	Q983R2	Q983R2 rhizobium l	475	6	4.4	381	16	Q92JX4	Q92JX4 rhizobium m
403	6	4.4	331	5	Q9NFB5	Q9NFB5 plasmodium	476	6	4.4	382	4	O9H878	Q9H878 homo sapien
404	6	4.4	331	10	Q9LL79	Q9LL79 phaseolus v	477	6	4.4	382	16	Q984H3	Q984H3 rhizobium l
405	6	4.4	332	10	Q9FTP8	Q9FTP8 oryza sativ	478	6	4.4	385	13	Q9PTU6	Q9PTU6 paralichthy
406	6	4.4	334	16	Q9K6D8	Q9K6D8 bacillus ha	479	6	4.4	386	10	Q9M3Y9	Q9M3Y9 citrus sine
407	6	4.4	335	16	Q9Z7D8	Q9Z7D8 chlamydia p	480	6	4.4	386	16	Q98H39	Q98H39 rhizobium l
408	6	4.4	338	11	Q9CSW7	Q9CSW7 mus musculus	481	6	4.4	387	16	Q92T60	Q92T60 rhizobium m
409	6	4.4	338	12	O11416	O11416 duck adenov	482	6	4.4	388	4	O9HA00	Q9HA00 homo sapien
410	6	4.4	339	11	Q9WU90	Q9WU90 mus musculus	483	6	4.4	388	4	Q9H839	Q9H839 homo sapien
411	6	4.4	339	15	Q92375	Q92375 bovine immu	484	6	4.4	388	4	O96HU6	Q96HU6 homo sapien
412	6	4.4	340	2	Q9F5X3	Q9F5X3 bacillus li	485	6	4.4	388	17	O58671	O58671 methanococc
413	6	4.4	340	3	O43050	O43050 s putative	486	6	4.4	389	4	Q9UGS0	Q9UGS0 homo sapien
414	6	4.4	342	5	Q9XZJ8	Q9XZJ8 trypanosoma	487	6	4.4	389	16	Q92KZ1	Q92KZ1 rhizobium m
415	6	4.4	342	2	O67999	O67999 bradyrhizob	488	6	4.4	390	4	O60667	O60667 homo sapien
416	6	4.4	345	5	Q9VGF3	Q9VGF3 drosophila	489	6	4.4	391	17	Q9HIY9	Q9HIY9 thermoplasma
417	6	4.4	347	16	Q985T4	Q985T4 rhizobium l	490	6	4.4	391	17	O28572	O28572 archaeoglob
418	6	4.4	348	10	Q9SZW7	Q9SZW7 arabidopsis	491	6	4.4	392	16	Q97E00	Q97E00 clostridium
419	6	4.4	349	5	O02230	O02230 caenorhabdi	492	6	4.4	395	16	Q92X17	Q92X17 rhizobium m
420	6	4.4	352	10	Q9FRM3	Q9FRM3 oryza sativ	493	6	4.4	396	2	O69069	O69069 streptomyce
421	6	4.4	352	16	Q97ES6	Q97ES6 clostridium	494	6	4.4	396	10	Q9LVN3	Q9LVN3 arabidopsis
422	6	4.4	353	5	Q9VYK4	Q9VYK4 drosophila	495	6	4.4	398	10	Q9SIF8	Q9SIF8 arabidopsis
423	6	4.4	353	8	Q9TEG8	Q9TEG8 nitzschia f	496	6	4.4	399	16	Q9KVA9	Q9KVA9 vibrio chol
424	6	4.4	353	10	Q9FO23	Q9FO23 nicotiana t	497	6	4.4	399	16	Q98KQ4	Q98KQ4 rhizobium l
425	6	4.4	353	10	Q9LFC7	Q9LFC7 arabidopsis	498	6	4.4	400	3	O96WW5	Q96WW5 schizosacch
426	6	4.4	353	11	O08563	O08563 rattus norv	499	6	4.4	401	16	Q9A5J9	Q9A5J9 caulobacter
427	6	4.4	354	8	O98841	O98841 schizophrag	500	6	4.4	402	10	Q9ATY2	Q9ATY2 triticum ae
428	6	4.4	354	16	Q97I69	Q97I69 clostridium	501	6	4.4	402	17	Q97ZH8	Q97ZH8 sulfolobus
429	6	4.4	356	17	Q980M3	Q980M3 sulfolobus	502	6	4.4	403	10	Q93YV2	Q93YV2 arabidopsis
430	6	4.4	357	10	Q947H4	Q947H4 nicotiana t	503	6	4.4	404	5	O9XUG2	Q9XUG2 caenorhabdi
431	6	4.4	358	4	O95350	O95350 homo sapien	504	6	4.4	405	16	Q9RZB8	Q9RZB8 deinococcus
432	6	4.4	358	11	Q9QXF4	Q9QXF4 mesocricetu	505	6	4.4	406	4	O9H0P4	Q9H0P4 homo sapien
433	6	4.4	359	3	Q9HD05	Q9HD05 candida rug	506	6	4.4	406	4	O96GC9	Q96GC9 homo sapien
434	6	4.4	359	13	O42399	O42399 gallus gall	507	6	4.4	406	11	Q99KU0	Q99KU0 mus musculus
435	6	4.4	360	2	O07866	O07866 streptococc	508	6	4.4	406	11	Q91ZQ0	Q91ZQ0 rattus norv
436	6	4.4	361	4	Q9NSC5	Q9NSC5 homo sapien	509	6	4.4	407	2	O9AJF4	O9AJF4 thermoactin
437	6	4.4	363	2	Q9F720	Q9F720 chlorobium	510	6	4.4	408	16	Q9KR93	Q9KR93 vibrio chol
438	6	4.4	363	16	Q97N32	Q97N32 clostridium	511	6	4.4	410	16	O51649	O51649 borrelia bu
439	6	4.4	363	17	Q9V0D3	Q9V0D3 pyrococcus	512	6	4.4	412	16	Q9A7L6	Q9A7L6 caulobacter
440	6	4.4	364	17	Q97295	Q97295 sulfolobus	513	6	4.4	413	16	Q926T5	Q926T5 listeria in
441	6	4.4	365	4	Q96N58	Q96N58 homo sapien	514	6	4.4	416	2	O55042	O55042 shigella so
442	6	4.4	366	16	Q99T17	Q99T17 staphylococ	515	6	4.4	417	10	Q9LXQ7	Q9LXQ7 arabidopsis
443	6	4.4	367	2	O9ETH0	Q9ETH0 yersinia pe	516	6	4.4	417	10	Q9ARH5	Q9ARH5 oryza sativ
444	6	4.4	368	3	Q9CLX3	Q9CLX3 schizosacch	517	6	4.4	418	2	O9AEG2	Q9AEG2 rhodococcus
445	6	4.4	368	5	Q93570	Q93570 caenorhabdi	518	6	4.4	418	2	O93DN0	Q93DN0 rhodococcus
446	6	4.4	368	16	Q9KOV1	Q9KOV1 thermotoga	519	6	4.4	418	5	O9VTD9	Q9VTD9 drosophila
447	6	4.4	368	16	O9K0V1	Q9K0V1 neisseria m	520	6	4.4	418	10	O9LJ18	O9LJ18 arabidopsis
448	6	4.4	370	5	O62580	O62580 giardia lam	521	6	4.4	418	16	Q97RH9	Q97RH9 streptococc
449	6	4.4	371	4	Q9H954	Q9H954 homo sapien	522	6	4.4	418	16	Q97PM3	Q97PM3 streptococc
450	6	4.4	371	16	Q97H87	Q97H87 clostridium	523	6	4.4	423	16	Q9WY82	Q9WY82 thermotoga
451	6	4.4	372	16	Q9KFL6	Q9KFL6 bacillus ha	524	6	4.4	424	10	O43170	O43170 solanum tub
452	6	4.4	373	10	Q9M899	Q9M899 arabidopsis	525	6	4.4	428	2	O88003	O88003 bordetella
453	6	4.4	373	17	O73997	O73997 pyrococcus	526	6	4.4	428	2	O9LOV8	Q9LOV8 streptomyce
454	6	4.4	374	4	O14580	O14580 homo sapien	527	6	4.4	428	2	O45374	O45374 bordetella



528	6	4.4	428	6	Q95JP3	Q95jp3 macaca fasc	601	5	Q24675	Q24675 drosophila
529	6	4.4	429	10	Q9LH89	Q9lh89 arabadopsi	602	5	Q24676	Q24676 drosophila
530	6	4.4	429	2	Q93A75	Q93a75 salmonella	603	5	Q27923	Q27923 drosophila
531	6	4.4	429	10	Q9ZQ17	Q9zqi7 arabadopsi	604	5	Q9NK25	Q9nk25 drosophila
532	6	4.4	429	10	Q24419	Q24419 myristica f	605	5	Q9NK24	Q9nk24 drosophila
533	6	4.4	429	16	Q92VZ1	Q92vz1 rhizobium m	606	5	Q9NK23	Q9nk23 drosophila
534	6	4.4	430	4	Q9NT83	Q9nt83 homo sapien	607	5	Q9NK22	Q9nk22 drosophila
535	6	4.4	431	10	Q9SB49	Q9sb49 arabadopsi	608	5	Q9NK21	Q9nk21 drosophila
536	6	4.4	431	10	Q23847	Q23847 brassica ca	609	5	Q9NK20	Q9nk20 drosophila
537	6	4.4	432	16	Q98EM1	Q98em1 rhizobium l	610	5	Q9NKY9	Q9nky9 drosophila
538	6	4.4	432	10	Q9AR01	Q9ar01 oryza sativ	611	5	Q9NKY8	Q9nky8 drosophila
539	6	4.4	437	2	Q9S0Y5	Q9s0y5 plesiomonas	612	5	Q9NKY7	Q9nky7 drosophila
540	6	4.4	437	2	Q9LI95	Q9li95 streptomyce	613	5	Q9NKY6	Q9nky6 drosophila
541	6	4.4	437	2	Q9S0U5	Q9s0u5 shigella so	614	5	Q9NKY5	Q9nky5 drosophila
542	6	4.4	439	2	Q48350	Q48350 staphylococ	615	5	Q9NK67	Q9nk67 drosophila
543	6	4.4	439	16	Q99OE6	Q99qe6 staphylococ	616	5	Q9N651	Q9n651 drosophila
544	6	4.4	440	10	Q9LG14	Q9lg14 arabadopsi	617	5	Q9BH74	Q9bh74 drosophila
545	6	4.4	441	2	Q9X990	Q9x990 streptococc	618	5	Q9BN01	Q9bn01 drosophila
546	6	4.4	444	16	Q9AB46	Q9ab46 caulobacter	619	5	Q9BN00	Q9bn00 drosophila
547	6	4.4	445	2	Q9F695	Q9f695 aquifex aeo	620	5	Q9GRF6	Q9grf6 drosophila
548	6	4.4	445	5	Q9VLG9	Q9vlg9 drosophila	621	5	Q23834	Q23834 drosophila
549	6	4.4	447	16	Q97LX5	Q97lx5 clostridium	622	5	Q9LGZ3	Q9lgz3 oryza sativ
550	6	4.4	448	2	Q24842	Q24842 acinetobact	623	5	Q9I0Y0	Q9i0y0 pseudomonas
551	6	4.4	451	5	Q24748	Q24748 drosophila	624	5	Q960C6	Q960c6 drosophila
552	6	4.4	451	15	Q90CT9	Q90ct9 human immun	625	5	Q926C8	Q926c8 rhizobium m
553	6	4.4	451	16	Q9HXP8	Q9hxf8 pseudomonas	626	5	Q98KJ1	Q98kj1 rhizobium l
554	6	4.4	453	4	Q9C073	Q9c073 homo sapien	627	5	Q9QB02	Q9qb02 hyphantria
555	6	4.4	453	16	O67436	O67436 aquifex aeo	628	5	Q9YW96	Q9yw96 epiphyas po
556	6	4.4	454	10	Q9XI59	Q9xi59 arabadopsi	629	5	O52774	O52774 myxococcus
557	6	4.4	455	5	Q9VJ28	Q9vj28 drosophila	630	5	O02306	O02306 caenorhabdi
558	6	4.4	455	10	Q9CA34	Q9ca34 arabadopsi	631	5	O11450	O11450 anagrapa f
559	6	4.4	455	11	Q9RLK7	Q9rlk7 mus musculu	632	5	Q9X9U1	Q9x9u1 streptomyce
560	6	4.4	456	10	Q93ZH8	Q93zh8 arabadopsi	633	5	O35664	O35664 mus musculu
561	6	4.4	456	16	Q9RC87	Q9rc87 bacillus ha	634	5	Q92325	Q92325 mus musculu
562	6	4.4	457	2	Q9P637	Q9p637 rhodobacter	635	5	Q95029	Q95029 tetrahymena
563	6	4.4	461	2	Q9LAE5	Q9lae5 nostoc punc	636	5	Q96VP9	Q96vp9 glomus intr
564	6	4.4	464	10	Q94EA9	Q94ea9 oryza sativ	637	5	Q93LX5	Q93lx5 streptomyce
565	6	4.4	466	4	Q9H9B2	Q9h9b2 homo sapien	638	5	O77213	O77213 drosophila
566	6	4.4	468	5	Q9BMH3	Q9bmh3 ichtyophth	639	5	O9VZA1	O9vza1 drosophila
567	6	4.4	469	10	Q9S7D8	Q9s7d8 arabadopsi	640	5	Q99QY7	Q99qy7 staphylococ
568	6	4.4	469	10	Q9T0E5	Q9t0e5 arabadopsi	641	5	O9LCR4	O9lcr4 paenibacill
569	6	4.4	469	16	O66887	O66887 aquifex aeo	642	5	O65336	O65336 autographa
570	6	4.4	470	8	Q37001	Q37001 arabadopsi	643	5	O92483	O92483 bombyx mori
571	6	4.4	470	10	Q49537	Q49537 arabadopsi	644	5	O92483	O92483 lactococcus
572	6	4.4	470	10	Q9ZN29	Q9zn29 brassica ju	645	5	O9W273	O9w273 drosophila
573	6	4.4	471	10	Q94GA4	Q94ga4 lycopersico	646	5	O9N8K9	O9n8k9 trypanosoma
574	6	4.4	472	16	Q910V9	Q910v9 pseudomonas	647	5	O97084	O97084 streptococc
575	6	4.4	472	16	O92N77	Q92nt7 rhizobium m	648	5	O84053	O84053 chlamydia t
576	6	4.4	475	10	O23314	O23314 arabadopsi	649	5	O96CX0	O96cx0 homo sapien
577	6	4.4	475	16	Q98GH7	Q98gh7 rhizobium l	650	5	O975V2	O975v2 sulfolobus
578	6	4.4	476	10	Q9ZUK2	Q9zuk2 arabadopsi	651	5	O99MN9	O99mn9 mus musculu
579	6	4.4	476	13	Q91940	Q91940 xiphophorus	652	5	O99YJ6	O99yj6 streptococc
580	6	4.4	478	2	Q93CS2	Q93cs2 shigella bo	653	5	O9BW03	O9bw03 homo sapien
581	6	4.4	480	5	O93973	Q93973 caenorhabdi	654	5	O9UJ56	O9uj56 homo sapien
582	6	4.4	481	2	O87729	O87729 vibrio algi	655	5	O9UJ56	O9uj56 neisseria m
583	6	4.4	481	16	Q9KU07	Q9kuu7 vibrio chol	656	5	O985V5	O985v5 rhizobium l
584	6	4.4	484	10	Q9SIN9	Q9sin9 arabadopsi	657	5	O9U6X2	O9u6x2 onchocerca
585	6	4.4	486	12	Q919G4	Q919g4 blueberry r	658	5	O9LIN9	O9lin9 arabadopsi
586	6	4.4	486	16	Q9RXH9	Q9rxh9 deinococcus	659	5	O9NUM8	O9num8 homo sapien
587	6	4.4	486	16	Q98AF9	Q98af9 rhizobium l	660	5	O9BWC5	O9bwc5 delnococt
588	6	4.4	487	10	Q9SSZ0	Q9ssz0 trifolium l	661	5	O04843	O04843 triticum ae
589	6	4.4	489	3	Q06266	Q06266 saccharomyc	662	5	O9LW66	O9lw66 arabadopsi
590	6	4.4	489	9	Q9MBM1	Q9mbm1 phage gify	663	5	O91W66	O91w66 arabadopsi
591	6	4.4	489	10	Q9LRB4	Q9lrb4 arabadopsi	664	5	O49048	O49048 arabadopsi
592	6	4.4	489	10	Q9LS29	Q9ls29 arabadopsi	665	5	O80650	O80650 arabadopsi
593	6	4.4	491	10	Q9SLJ8	Q9slj8 arabadopsi	666	5	O93X73	O93x73 malus domes
594	6	4.4	491	10	Q944S5	Q944s5 arabadopsi	667	5	Q19594	Q19594 caenorhabdi
595	6	4.4	492	3	Q08966	Q08966 saccharomyc	668	5		
596	6	4.4	493	16	O55722	O55722 synechocyst	669	5		
597	6	4.4	494	5	O23932	O23932 drosophila	670	5		
598	6	4.4	494	5	O24642	O24642 drosophila	671	5		
599	6	4.4	494	5	O24643	O24643 drosophila	672	5		
600	6	4.4	494	5	O24644	O24644 drosophila	673	5		

674	6	4.4	572	16	Q92KT1	Q92ktl rhizobium m	747	6	4.4	693	10	Q82802	Q82802 nicotiana t
675	6	4.4	580	10	Q43540	Q43540 llium long	748	6	4.4	693	12	Q69090	Q69090 human herpe
676	6	4.4	581	5	Q9VNW4	Q9vnw4 drosophila	749	6	4.4	695	16	Q9CH87	Q9ch87 laccococcus
677	6	4.4	582	4	Q9NSP8	Q9nsp8 homo sapien	750	6	4.4	696	13	Q9DGF5	Q9d9f5 cynops pyrr
678	6	4.4	585	10	Q9LGG1	Q9l9g1 oryza sativ	751	6	4.4	699	5	Q25987	Q25987 plasmodium
679	6	4.4	588	10	Q9MA86	Q9ma86 arabidopsis	752	6	4.4	702	5	Q9BNX6	Q9bnx6 endeis laev
680	6	4.4	591	11	Q9JI49	Q9ji49 rattus norv	753	6	4.4	703	5	Q9BNX2	Q9bnx2 milnesium t
681	6	4.4	596	5	Q45633	Q45633 caenorhabdi	754	6	4.4	706	10	Q41343	Q41343 lycopersico
682	6	4.4	598	10	Q65435	Q65435 arabidopsis	755	6	4.4	712	4	Q9H0E7	Q9h0e7 homo sapien
683	6	4.4	599	2	Q93CJ2	Q93cj2 anabaena va	756	6	4.4	715	5	Q76728	Q76728 trypanosoma
684	6	4.4	602	16	Q98LA1	Q98lal rhizobium l	757	6	4.4	715	13	Q98SP7	Q98sp7 brachydanio
685	6	4.4	603	16	Q9A313	Q9a313 caulobacter	758	6	4.4	716	10	Q94826	Q94826 solanum tub
686	6	4.4	604	17	Q9VON3	Q9von3 pyrococcus	759	6	4.4	719	10	Q9ST49	Q9st49 zea mays m
687	6	4.4	606	10	Q9FIW8	Q9fiw8 arabidopsis	760	6	4.4	720	10	Q9LWV0	Q9lww0 arabidopsis
688	6	4.4	607	5	Q9GZF2	Q9gzf2 caenorhabdi	761	6	4.4	720	10	Q50027	Q50027 lycopersico
689	6	4.4	613	10	Q49231	Q49231 brassica ol	762	6	4.4	725	5	Q9VEG6	Q9veg6 drosophila
690	6	4.4	613	10	Q38846	Q38846 arabidopsis	763	6	4.4	725	10	Q9ZU35	Q9zu35 arabidopsis
691	6	4.4	614	11	Q9WV00	Q9wv00 mus musculu	764	6	4.4	725	10	Q9ASR9	Q9asr9 arabidopsis
692	6	4.4	615	5	Q9W232	Q9w232 drosophila	765	6	4.4	726	5	Q9BNX9	Q9bnx9 armadillidi
693	6	4.4	618	17	Q9V0S9	Q9v0s9 pyrococcus	766	6	4.4	726	5	Q9BNX7	Q9bnx7 emesocampa
694	6	4.4	621	10	Q9FWK6	Q9fwk6 oryza sativ	767	6	4.4	726	5	Q9BNX2	Q9bnx2 mastigoproc
695	6	4.4	621	10	Q9XH51	Q9xh51 oryza sativ	768	6	4.4	726	5	Q9BNX1	Q9bnx1 nipponopsal
696	6	4.4	625	2	Q9FD94	Q9fd94 azospirillu	769	6	4.4	726	5	Q9BNX0	Q9bnx0 unidentified
697	6	4.4	625	10	Q9ZW70	Q9zw70 arabidopsis	770	6	4.4	726	5	Q9BNW4	Q9bnw4 tanystylum
698	6	4.4	628	10	Q24640	Q24640 rumex palus	771	6	4.4	727	5	Q9BNW8	Q9bnw8 scutigerecl
699	6	4.4	630	10	Q24608	Q24608 dianthus ca	772	6	4.4	727	5	Q9BNW0	Q9bnw0 peripatus s
700	6	4.4	630	16	Q9HT09	Q9ht09 pseudomonas	773	6	4.4	728	5	Q9BNW7	Q9bnw7 scolopendra
701	6	4.4	631	10	Q49043	Q49043 dianthus ca	774	6	4.4	729	13	Q90738	Q90738 gallus gall
702	6	4.4	633	5	Q9BNY0	Q9bny0 artemia sal	775	6	4.4	729	13	Q90971	Q90971 gallus gall
703	6	4.4	633	5	Q9BNX8	Q9bnx8 semibalanus	776	6	4.4	730	3	Q9C2E3	Q9c2e3 neurospora
704	6	4.4	633	5	Q9BNX3	Q9bnx3 machiloides	777	6	4.4	730	4	Q9HBV1	Q9hby1 homo sapien
705	6	4.4	633	10	Q949H6	Q949h6 fragaria an	778	6	4.4	732	2	Q9RH03	Q9rh03 azospirillu
706	6	4.4	634	10	Q9FPP3	Q9fpp3 carica papa	779	6	4.4	733	13	Q73897	Q73897 gallus gall
707	6	4.4	634	10	Q9ZSW4	Q9zsw4 citrus sine	780	6	4.4	735	10	Q49230	Q49230 brassica ol
708	6	4.4	635	10	Q49153	Q49153 pisum sativ	781	6	4.4	736	10	Q49187	Q49187 lycopersico
709	6	4.4	635	10	Q65871	Q65871 pisum sativ	782	6	4.4	738	10	Q48929	Q48929 nicotiana t
710	6	4.4	636	10	Q9ZSQ0	Q9zsq0 phaseolus a	783	6	4.4	738	17	Q9M7M1	Q9m7m1 prunus pers
711	6	4.4	637	5	Q9BNW6	Q9bnw6 speleonecte	784	6	4.4	738	17	Q96X85	Q96x85 sulfolobus
712	6	4.4	637	10	Q49077	Q49077 cucumis mel	785	6	4.4	739	10	Q9M5L8	Q9m5l8 mangifera i
713	6	4.4	637	10	Q9ZWL5	Q9zwl5 passiflora	786	6	4.4	740	10	Q82436	Q82436 cucumis mel
714	6	4.4	637	10	Q9SSY5	Q9ssy5 cucumis sat	787	6	4.4	740	10	Q9SSY6	Q9ssy6 cucumis sat
715	6	4.4	642	4	Q9H1B8	Q9h1b8 homo sapien	788	6	4.4	740	10	Q9SH20	Q9sh20 arabidopsis
716	6	4.4	644	5	Q9GV90	Q9gv90 caenorhabdi	789	6	4.4	740	10	Q9XH58	Q9xh58 pelargonium
717	6	4.4	646	5	Q965T6	Q965t6 caenorhabdi	790	6	4.4	741	10	Q81122	Q81122 malus domes
718	6	4.4	647	16	Q84627	Q84627 chlamydia t	791	6	4.4	741	10	Q9XH57	Q9xh57 pelargonium
719	6	4.4	649	4	Q96CR4	Q96cr4 homo sapien	792	6	4.4	741	10	Q9M506	Q9m506 vitis vinif
720	6	4.4	649	16	Q9CMF2	Q9cmf2 pasteurella	793	6	4.4	741	10	Q949H7	Q949h7 fragaria an
721	6	4.4	654	16	Q9HYF0	Q9hyf0 pseudomonas	794	6	4.4	742	4	Q9H6E6	Q9h6e6 homo sapien
722	6	4.4	656	5	Q9BNW1	Q9bnw1 nereis vire	795	6	4.4	743	5	Q17305	Q17305 caenorhabdi
723	6	4.4	656	10	Q9FVM7	Q9fvm7 triticum ae	796	6	4.4	743	13	Q98SJ5	Q98sj5 brachydanio
724	6	4.4	656	16	Q9KNX4	Q9knx4 vibrio chol	797	6	4.4	746	2	Q9ZFD7	Q9zfd7 riftia pach
725	6	4.4	658	5	Q9BNX5	Q9bnx5 hutchinsoni	798	6	4.4	746	5	Q9N2V2	Q9n2v2 caenorhabdi
726	6	4.4	658	5	Q9BNX4	Q9bnx4 limulus pol	799	6	4.4	749	2	Q9KZ05	Q9kz05 streptomyce
727	6	4.4	658	5	Q9BNW5	Q9bnw5 tomocerus s	800	6	4.4	753	10	Q94723	Q94723 oryza sativ
728	6	4.4	660	5	Q9BNW9	Q9bnw9 polyxenus f	801	6	4.4	754	4	Q15310	Q15310 homo sapien
729	6	4.4	662	5	Q44832	Q44832 caenorhabdi	802	6	4.4	754	10	Q41342	Q41342 lycopersico
730	6	4.4	664	4	Q9Z541	Q9z541 homo sapien	803	6	4.4	754	10	Q49186	Q49186 lycopersico
731	6	4.4	664	12	Q98162	Q98162 littie cher	804	6	4.4	756	10	Q9LPD1	Q9lpd1 arabidopsis
732	6	4.4	666	2	Q9JRN9	Q9jrn9 actinobacil	805	6	4.4	759	5	Q9NTG9	Q9ntg9 tetrahymena
733	6	4.4	669	10	Q81291	Q81291 arabidopsis	806	6	4.4	761	5	Q46336	Q46336 trichomonas
734	6	4.4	672	10	Q9LPA0	Q9lpa0 arabidopsis	807	6	4.4	762	5	Q46337	Q46337 trichomonas
735	6	4.4	677	16	Q9RSS3	Q9rss3 deinococcus	808	6	4.4	763	2	Q9R6Y7	Q9r6y7 anabaena sp
736	6	4.4	680	2	Q9S2C9	Q9s2c9 streptomyce	809	6	4.4	771	16	Q06359	Q06359 mycobacteri
737	6	4.4	683	2	Q00620	Q00620 pseudomonas	810	6	4.4	774	5	Q9U2T1	Q9u2t1 caenorhabdi
738	6	4.4	683	12	Q9QKD0	Q9qkd0 hypostoter d	811	6	4.4	774	5	Q9NE97	Q9ne97 leishmania
739	6	4.4	686	5	Q45255	Q45255 caenorhabdi	812	6	4.4	776	17	Q27582	Q27582 methanother
740	6	4.4	687	3	Q12407	Q12407 saccharomyc	813	6	4.4	777	11	Q60472	Q60472 cavia porce
741	6	4.4	687	11	Q9JU08	Q9jj08 rattus norv	814	6	4.4	778	16	Q25721	Q25721 helicobacte
742	6	4.4	688	4	Q96B69	Q96b69 homo sapien	815	6	4.4	778	16	Q9ZM86	Q9zm86 helicobacte
743	6	4.4	690	10	Q9FX17	Q9fx17 arabidopsis	816	6	4.4	780	11	Q9D5V5	Q9d5v5 mus musculu
744	6	4.4	691	16	Q07430	Q07430 mycobacteri	817	6	4.4	782	10	Q9SAU6	Q9sau6 abies grand
745	6	4.4	691	16	Q98PS5	Q98ps5 mycoplasma	818	6	4.4	783	10	Q9LFG1	Q9lfg1 arabidopsis
746	6	4.4	692	10	Q24569	Q24569 zea mays (m	819	6	4.4	783	12	Q9WJ22	Q9wj22 ophiostoma

820	6	4.4	784	2	O86858	O86858 streptomyc	893	6	4.4	362	12	Q9B08	Q9eb08 sesbania mo
821	6	4.4	792	10	O64769	O64769 arabidopsis	894	6	4.4	963	10	Q9ASH9	Q9ash9 oryza sativ
822	6	4.4	792	11	Q91YM8	Q91YM8 mus musculu	895	6	4.4	966	2	Q52932	Q52932 rhizobium m
823	6	4.4	792	16	O83999	O83999 treponema p	896	6	4.4	971	2	Q56407	Q56407 listeria m
824	6	4.4	795	4	Q9H2G7	Q9h2g7 homo sapien	897	6	4.4	971	3	Q9UUM2	Q9uum2 schizosacch
825	6	4.4	798	11	O54795	O54795 mus musculu	898	6	4.4	971	5	Q9XVS4	Q9xvs4 caenorhabdi
826	6	4.4	798	11	O88411	O88411 mus musculu	899	6	4.4	988	11	Q9EON5	Q9eqn5 rattus norv
827	6	4.4	801	4	Q969U4	Q969u4 homo sapien	900	6	4.4	989	10	Q9SCM5	Q9scm5 arabidopsis
828	6	4.4	806	4	Q9H5K1	Q9h5k1 homo sapien	901	6	4.4	997	4	Q9R3P9	Q9r3p9 homo sapien
829	6	4.4	806	4	Q96GN6	Q96gn6 homo sapien	902	6	4.4	998	17	Q96Z52	Q96z52 ureaplasma
830	6	4.4	808	4	Q96CQ7	Q96cq7 homo sapien	903	6	4.4	1003	16	Q9PQ01	Q9pq01 ureaplasma
831	6	4.4	809	6	Q9BE30	Q9be30 macaca fasc	904	6	4.4	1009	10	Q9W2T8	Q9w2t8 arabidopsis
832	6	4.4	811	5	Q917545	Q917545 caenorhabdi	905	6	4.4	1011	5	Q9V148	Q9v148 drosophila
833	6	4.4	815	13	Q90917	Q90917 gallus galli	906	6	4.4	1016	5	Q9VM73	Q9vm73 drosophila
834	6	4.4	816	10	Q94FW2	Q94fw2 abies grand	907	6	4.4	1018	10	Q9LSX6	Q9lsx6 arabidopsis
835	6	4.4	817	10	O81086	O81086 abies grand	908	6	4.4	1023	5	Q9XFD4	Q9xyd4 dictyosteli
836	6	4.4	820	11	Q9DBX3	Q9dbx3 mus musculu	909	6	4.4	1025	10	Q9FLH2	Q9flh2 arabidopsis
837	6	4.4	825	10	Q9MBB4	Q9mbb4 pisum sativ	910	6	4.4	1027	4	Q9BR70	Q9br70 homo sapien
838	6	4.4	831	4	Q9P212	Q9p212 homo sapien	911	6	4.4	1027	10	Q9ZRQ2	Q9zrq2 arabidopsis
839	6	4.4	833	11	Q9QUM7	Q9qum7 mus musculu	912	6	4.4	1028	4	O15042	O15042 homo sapien
840	6	4.4	833	11	Q92106	Q921q6 mus musculu	913	6	4.4	1032	5	O61207	O61207 caenorhabdi
841	6	4.4	834	10	Q93X19	Q93x19 solanum tub	914	6	4.4	1035	16	O25887	O25887 helicobacte
842	6	4.4	835	10	Q93W18	Q93w18 solanum tub	915	6	4.4	1036	4	Q96CC1	Q96cc1 homo sapien
843	6	4.4	835	5	Q9BQC7	Q9bqc7 homo sapien	916	6	4.4	1042	5	Q9W777	Q9w777 drosophila
844	6	4.4	837	10	Q949H4	Q949h4 glycine max	917	6	4.4	1046	11	Q91Y38	Q91y38 mus musculu
845	6	4.4	837	17	O26179	O26179 methanother	918	6	4.4	1047	4	O60284	O60284 homo sapien
846	6	4.4	839	4	Q9UP83	Q9up83 homo sapien	919	6	4.4	1047	5	O22985	O22985 caenorhabdi
847	6	4.4	841	5	Q95UT8	Q95ut8 monosiga br	920	6	4.4	1053	10	Q9FXK8	Q9fxk8 lycopersico
848	6	4.4	841	5	Q95UT8	Q95ut8 monosiga br	921	6	4.4	1057	13	O13033	O13033 brachydanio
849	6	4.4	843	3	O94479	O94479 schizosacch	922	6	4.4	1058	10	O80386	O80386 arabidopsis
850	6	4.4	844	5	Q9BME7	Q9bme7 aedes aegy	923	6	4.4	1059	5	Q9W3X6	Q9w3x6 drosophila
851	6	4.4	844	5	Q95P39	Q95p39 aedes aegy	924	6	4.4	1061	13	Q9W699	Q9w699 fugu rubrip
852	6	4.4	845	12	Q9YU15	Q9yu15 infectious	925	6	4.4	1064	10	Q9MAU0	Q9mau0 arabidopsis
853	6	4.4	845	12	O82732	O82732 infectious	926	6	4.4	1079	16	Q9KM58	Q9km58 vibrio chol
854	6	4.4	847	5	O19930	O19930 caenorhabdi	927	6	4.4	1083	4	O15386	O15386 homo sapien
855	6	4.4	849	10	Q9C7M2	Q9c7m2 arabidopsis	928	6	4.4	1085	4	O9Y4D1	O9y4d1 homo sapien
856	6	4.4	849	10	Q949M6	Q949m6 arabidopsis	929	6	4.4	1087	5	O22490	O22490 caenorhabdi
857	6	4.4	851	4	Q9UMP2	Q9ump2 homo sapien	930	6	4.4	1088	5	Q9NSY6	Q9nsy6 caenorhabdi
858	6	4.4	853	17	O26651	O26651 methanother	931	6	4.4	1101	10	Q9FWL8	Q9fwl8 oryza sativ
859	6	4.4	855	10	O50024	O50024 lycopersico	932	6	4.4	1102	10	Q9LVP0	Q9lvp0 arabidopsis
860	6	4.4	856	11	O62121	O62121 mus musculu	933	6	4.4	1119	5	Q9W532	Q9w532 drosophila
861	6	4.4	856	17	O58565	O58565 pyrococcus	934	6	4.4	1124	10	O49318	O49318 arabidopsis
862	6	4.4	857	11	O91XN5	O91xn5 rattus norv	935	6	4.4	1139	5	O76601	O76601 caenorhabdi
863	6	4.4	858	11	O60423	O60423 cricetus	936	6	4.4	1141	16	Q9W46	Q9w46 staphylococ
864	6	4.4	859	10	Q9FW70	Q9fw70 oryza sativ	937	6	4.4	1141	16	Q932F7	Q932f7 staphylococ
865	6	4.4	864	11	Q9DBB4	Q9dbb4 mus musculu	938	6	4.4	1149	4	Q13577	Q13577 homo sapien
866	6	4.4	865	6	Q95LL1	Q95ll1 macaca fasc	939	6	4.4	1150	3	O43052	O43052 schizosacch
867	6	4.4	869	2	Q9ZIX2	Q9zix2 pseudoalter	940	6	4.4	1151	5	O18158	O18158 caenorhabdi
868	6	4.4	869	16	Q97119	Q97119 clostridium	941	6	4.4	1166	2	O86489	O86489 staphylococ
869	6	4.4	870	10	Q9SUC1	Q9suc1 arabidopsis	942	6	4.4	1171	2	O9KWX6	O9kwx6 staphylococ
870	6	4.4	875	3	Q96WP8	Q96wp8 aspergillus	943	6	4.4	1183	5	Q960J6	Q960j6 drosophila
871	6	4.4	875	10	O41008	Q41008 pisum sativ	944	6	4.4	1207	5	Q21535	Q21535 caenorhabdi
872	6	4.4	881	5	Q9NE42	Q9ne42 leishmania	945	6	4.4	1209	5	Q21667	Q21667 caenorhabdi
873	6	4.4	884	12	O66658	O66658 equine herp	946	6	4.4	1217	10	Q9XGM3	Q9xgm3 arabidopsis
874	6	4.4	886	2	O68973	O68973 synechococc	947	6	4.4	1217	10	Q9SCX7	Q9scx7 arabidopsis
875	6	4.4	890	3	O60040	O60040 ajellomyces	948	6	4.4	1217	10	Q9SCX6	Q9scx6 arabidopsis
876	6	4.4	890	10	Q9LQ11	Q9lql1 arabidopsis	949	6	4.4	1217	15	Q9WS53	Q9ws53 simian t-ce
877	6	4.4	898	5	Q9W410	Q9w410 drosophila	950	6	4.4	1221	5	O45796	O45796 caenorhabdi
878	6	4.4	903	6	Q9GLX5	Q9gly5 oryctolagus	951	6	4.4	1224	5	Q9Y152	Q9y152 drosophila
879	6	4.4	909	16	Q98C21	Q98c21 rhizobium l	952	6	4.4	1229	10	Q9SY12	Q9sy12 arabidopsis
880	6	4.4	917	11	O54892	O54892 rattus norv	953	6	4.4	1229	10	O49749	O49749 arabidopsis
881	6	4.4	918	5	Q9VT19	Q9vt19 drosophila	954	6	4.4	1232	10	O23998	O23998 hordeum vul
882	6	4.4	933	5	Q9BL41	Q9bl41 caenorhabdi	955	6	4.4	1245	16	Q9I5W1	Q9i5w1 pseudomonas
883	6	4.4	934	2	Q9K452	Q9k452 streptomyc	956	6	4.4	1248	5	Q9NGK5	Q9ngk5 drosophila
884	6	4.4	938	4	Q9NSQ3	Q9nsq3 homo sapien	957	6	4.4	1253	2	Q93HF9	Q93hf9 streptomyc
885	6	4.4	950	12	Q91163	Q91163 regina rana	958	6	4.4	1258	4	O15357	O15357 homo sapien
886	6	4.4	955	5	Q95PB9	Q95pb9 aedes aegy	959	6	4.4	1260	5	Q9U2M1	Q9u2m1 caenorhabdi
887	6	4.4	955	5	Q95P62	Q95p62 aedes aegy	960	6	4.4	1270	13	Q9PWF5	Q9pwf5 morone saxa
888	6	4.4	957	5	Q9W2N6	Q9w2n6 drosophila	961	6	4.4	1278	10	Q9AV65	Q9av65 oryza sativ
889	6	4.4	957	11	Q9EPA0	Q9epa0 rattus norv	962	6	4.4	1283	5	Q9VFI1	Q9vfi1 drosophila
890	6	4.4	961	10	Q9ZQC2	Q9zqc2 arabidopsis	963	6	4.4	1285	10	Q9LXG1	Q9lgx1 oryza sativ
891	6	4.4	962	12	O72157	O72157 southern be	964	6	4.4	1304	13	Q9PWF6	Q9pwf6 morone saxa
892	6	4.4	962	12	O72159	O72159 southern be	965	6	4.4	1313	4	Q9C0C9	Q9c0c9 homo sapien

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966 6 4.4 1317 16 Q91181 Q91181 pseudomonas
967 6 4.4 1337 5 Q9Y008 Q9Y008 plasmodium
968 6 4.4 1338 3 Q60030 Q60030 kluyveromyc
969 6 4.4 1342 5 Q97364 Q97364 plasmodium
970 6 4.4 1345 5 Q9VP12 Q9VP12 drosophila
971 6 4.4 1346 5 Q45699 Q45699 caenorhabdi
972 6 4.4 1370 11 Q9ESB8 Q9ESB8 mus musculu
973 6 4.4 1388 4 Q9BYU8 Q9BYU8 homo sapien
974 6 4.4 1396 5 Q9NEC5 Q9NEC5 leishmania
975 6 4.4 1398 1 Q9P91.1 Q9P91.1 pyrococcus
976 6 4.4 1422 5 Q00914 Q00914 plasmodium
977 6 4.4 1427 5 Q9VPQ0 Q9VPQ0 drosophila
978 6 4.4 1433 10 Q23588 Q23588 arabidopsis
979 6 4.4 1437 4 Q9BZ95 Q9BZ95 homo sapien
980 6 4.4 1437 4 Q9BYU9 Q9BYU9 homo sapien
981 6 4.4 1438 3 Q06681 Q06681 saccharomyc
982 6 4.4 1450 11 Q54728 Q54728 rattus norv
983 6 4.4 1452 5 Q9VT22 Q9VT22 drosophila
984 6 4.4 1455 5 Q17012 Q17012 caenorhabdi
985 6 4.4 1455 5 Q965E3 Q965E3 caenorhabdi
986 6 4.4 1459 17 Q977Z6 Q977Z6 thermoplas
987 6 4.4 1463 5 Q44384 Q44384 drosophila
988 6 4.4 1470 5 Q9VR74 Q9VR74 drosophila
989 6 4.4 1487 11 Q03626 Q03626 rattus norv
990 6 4.4 1495 4 Q9P2K8 Q9P2K8 homo sapien
991 6 4.4 1495 11 P70587 P70587 rattus norv
992 6 4.4 1506 10 Q9CA14 Q9CA14 arabidopsis
993 6 4.4 1512 5 Q9UIU7 Q9UIU7 caenorhabdi
994 6 4.4 1523 2 Q93HI0 Q93HI0 streptomyce
995 6 4.4 1537 4 Q96NW7 Q96NW7 homo sapien
996 6 4.4 1539 10 Q41813 Q41813 zea mays (m
997 6 4.4 1558 5 Q96Z75 Q96Z75 plasmodium
998 6 4.4 1560 4 Q43177 Q43177 homo sapien
999 6 4.4 1570 11 Q9ESB6 Q9ESB6 mus musculu
1000 6 4.4 1604 13 Q90662 Q90662 gallus gall
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## ALIGNMENTS

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RESULT 1
P78451 PRELIMINARY; PRT; 167 AA.
AC P78451:
DT 01-MAY-1997 (TReMBLrel. 03, Created)
DT 01-MAY-1997 (TReMBLrel. 03, Last sequence update)
DT 01-DEC-2001 (TReMBLrel. 19, Last annotation update)
DE SOMATOMAMOTROPIN (CHORIONIC SOMATOMAMOTROPIN) (HCS) (FRAGMENT).
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX NCBI_TaxID=9606;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=78071761; PubMed=593368;
RA Shine J., Seeburg P.H., Martial J.A., Baxter J.D., Goodman H.M.;
RT "Construction and analysis of recombinant DNA for human chorionic
sonatomamototropin."
RL Nature 270:494-499 (1977).
RN [2]
RP SEQUENCE OF 110-167 FROM N.A.
RX MEDLINE=78160787; PubMed=611657;
RA Seeburg P.H., Shine J., Martial J.A., Ullrich A., Goodman H.M.,
RA Baxter J.D.;
RT "Nucleotide sequence of a human gene coding for a polypeptide
hormone."
RL Trans. Assoc. Am. Physicians 90:109-116 (1977).
DR EMBL; V00593; CAA23840.1; -.
DR EMBL; M25118; AAA35721.1; -.
DR HSSP; P01241; 1A22.
DR InterPro; IPR001400; SOMATOTROPIN.
DR Pfam; PF00103; hormone; 1.
DR PRINTS; PR00836; SOMATOTROPIN.
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DR PROSITE; PS00266; SOMATOTROPIN_1; 1.
DR PROSITE; PS00338; SOMATOTROPIN_2; 1.
KW Chorion.
FT NON_TER 1
SQ SEQUENCE 167 AA; 19586 MW; 6EC7829D3938E976 CRC64;

Query Match 58.5%; Score 79; DB 4; Length 167;
Best Local Similarity 100.0%; Pred. No. 1.9e-74;
Matches 79; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 55 FDSIPTPSNMEETQOKSNLELRISLLIESWLEPVRLSRMFANLVYDTSDDYHL 114
Db 30 FDSIPTPSNMEETQOKSNLELRISLLIESWLEPVRLSRMFANLVYDTSDDYHL 89
QY 115 LKDLEEGIQTLMGRLDGS 133
Db 90 LKDLEEGIQTLMGRLDGS 108

RESULT 2
Q14407 PRELIMINARY; PRT; 217 AA.
AC Q14407:
DT 01-NOV-1996 (TReMBLrel. 01, Created)
DT 01-NOV-1996 (TReMBLrel. 01, Last sequence update)
DT 01-DEC-2001 (TReMBLrel. 19, Last annotation update)
DE CHORIONIC SOMATOMAMOTROPIN CS-2.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX NCBI_TaxID=9606;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=89307277; PubMed=27444760;
RA Chen E.Y., Liao Y.C., Smith D.H., Barrera-Saldana H.A., Gelinas R.E.,
RA Seeburg P.H.;
RT "The human growth hormone locus: nucleotide sequence, biology, and
evolution."
RL Genomics 4:479-497 (1989).
RN [2]
RP SEQUENCE FROM N.A.
RX MEDLINE=91102558; PubMed=1980158;
RA Vnencak-Jones C.L., Phillips J.A. III.;
RT "Hot spots for growth hormone gene deletions in homologous regions
outside of Alu repeats."
RL Science 250:1745-1748 (1990).
DR EMBL; J03071; AAA52553.1; -.
DR HSSP; P01241; 1A22.
DR InterPro; IPR001400; SOMATOTROPIN.
DR Pfam; PF00103; hormone; 1.
DR PRINTS; PR00836; SOMATOTROPIN.
DR PROSITE; PS00266; SOMATOTROPIN_1; 1.
DR PROSITE; PS00338; SOMATOTROPIN_2; 1.
SQ SEQUENCE 217 AA; 24994 MW; 39FAACDDB6B2E951 CRC64;

Query Match 58.5%; Score 79; DB 4; Length 217;
Best Local Similarity 100.0%; Pred. No. 2.4e-74;
Matches 79; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 55 FDSIPTPSNMEETQOKSNLELRISLLIESWLEPVRLSRMFANLVYDTSDDYHL 114
Db 80 FDSIPTPSNMEETQOKSNLELRISLLIESWLEPVRLSRMFANLVYDTSDDYHL 139
QY 115 LKDLEEGIQTLMGRLDGS 133
Db 140 LKDLEEGIQTLMGRLDGS 158

RESULT 3
Q14406 PRELIMINARY; PRT; 199 AA.
ID Q14406
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AC Q14406;  
 DT 01-NOV-1996 (TReMBLrel. 01, Created)  
 DT 01-NOV-1996 (TReMBLrel. 01, Last sequence update)  
 DT 01-DEC-2001 (TReMBLrel. 19, Last annotation update)  
 DE CHORIONIC SOMATOMOTROPIN CS-5.  
 OS Homo sapiens (Human).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  
 OX NCBI\_TaxID=9606;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=89307277; PubMed=2744760;  
 RA Chen E.Y., Liao Y.C., Smith D.H., Barrera-Saldana H.A., Gelin R.E.,  
 RA Seeburg P.H.;  
 RT "The human growth hormone locus: nucleotide sequence, biology, and  
 evolution.";  
 RL Genomics 4:479-497(1989).  
 RN [2]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=91102558; PubMed=1980158;  
 RA Vnencak-Jones C.L., Phillips J.A. III.;  
 RT "Hot spots for growth hormone gene deletions in homologous regions  
 outside of Alu repeats.";  
 RL Science 250:1745-1748(1990).  
 DR EMBL: J03071; AAA52550.1; -.  
 DR HSSP; P01241; 1A22.  
 DR InterPro; IPR001400; SOMATOTROPIN.  
 DR Pfam; PF00103; hormone; 2.  
 DR PROSITE; PS00338; SOMATOTROPIN\_2; 1.  
 DR SEQUENCE 199 AA; 22649 MW; 119656E87AFD55C3 CRC64;

Query Match 17.8%; Score 24; DB 4; Length 199;  
 Best Local Similarity 100.0%; Pred. No. 6.1e-17;  
 Matches 24; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 100 NNLVYDTSDDYHLKDLKEGIQ 123  
 DB 107 NNLVYDTSDDYHLKDLKEGIQ 130

RESULT 4  
 Q16631  
 ID Q16631 PRELIMINARY; PRT; 217 AA.  
 AC Q16631; Q14405;  
 DT 01-NOV-1996 (TReMBLrel. 01, Created)  
 DT 01-NOV-1996 (TReMBLrel. 01, Last sequence update)  
 DT 01-DEC-2001 (TReMBLrel. 19, Last annotation update)  
 DE GROWTH HORMONE.  
 OS Homo sapiens (Human).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  
 OX NCBI\_TaxID=9606;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=82014939; PubMed=6269091;  
 RA DeNoto F.M., Moore D.D., Goodman H.M.;  
 RT "Human growth hormone DNA sequence and mRNA structure: possible  
 alternative splicing.";  
 RL Nucleic Acids Res. 9:3719-3730(1981).  
 RN [2]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=84057143; PubMed=6357679;  
 RA Adelman J.P., Hayflick J.S., Vasser M., Seeburg P.H.;  
 RT "In vitro deletional mutagenesis for bacterial production of the  
 20,000-dalton form of human pituitary growth hormone.";  
 RL DNA 2:183-193(1983).  
 DR EMBL: V00520; CAA23779.1; -.  
 DR HSSP; P01241; LHGU.  
 DR InterPro; IPR001400; SOMATOTROPIN.  
 DR Pfam; PF00103; hormone; 1.  
 DR PRINTS; PR00836; SOMATOTROPIN.  
 DR PROSITE; PS00266; SOMATOTROPIN\_1; 1.

DR PROSITE; PS00338; SOMATOTROPIN\_2; 1.  
 SQ SEQUENCE 217 AA; 24803 MW; CCC4D81150D908AC CRC64;  
 Query Match 16.3%; Score 22; DB 4; Length 217;  
 Best Local Similarity 100.0%; Pred. No. 8.1e-15;  
 Matches 22; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 QY 114 LLKDLEEGIQTLMGRLDGSPR 135  
 DB 139 LLKDLEEGIQTLMGRLDGSPR 160  
 RESULT 5  
 Q9UNL5  
 ID Q9UNL5 PRELIMINARY; PRT; 171 AA.  
 AC Q9UNL5;  
 DT 01-MAY-2000 (TReMBLrel. 13, Created)  
 DT 01-MAY-2000 (TReMBLrel. 13, Last sequence update)  
 DT 01-DEC-2001 (TReMBLrel. 19, Last annotation update)  
 DE GROWTH HORMONE SPLICE VARIANT.  
 OS Homo sapiens (Human).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  
 OX NCBI\_TaxID=9606;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=PITUITARY;  
 RA Song H., Peng Y., Dai M., Huang Q., Mao Y., Zhang Q., Mao M., Fu G.,  
 RA Luo M., Chen J., Hu R.;  
 RT "Human growth hormone variant splicing gene.";  
 RL Submitted (DEC-1998) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AF110644; AAD48584.1; -.  
 DR HSSP; P01241; 1AXI.  
 DR InterPro; IPR001400; SOMATOTROPIN.  
 DR Pfam; PF00103; hormone; 2.  
 DR PRINTS; PR00836; SOMATOTROPIN.  
 DR PROSITE; PS00286; SOMATOTROPIN\_1; 1.  
 DR PROSITE; PS00338; SOMATOTROPIN\_2; 1.  
 SQ SEQUENCE 171 AA; 19801 MW; 9FA9013991FA9F28 CRC64;

Query Match 14.1%; Score 19; DB 4; Length 171;  
 Best Local Similarity 100.0%; Pred. No. 9e-12;  
 Matches 19; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 66 EETQOKSNLELLRISLLLI 84  
 DB 91 EETQOKSNLELLRISLLLI 109

RESULT 6  
 Q9HBZ1  
 ID Q9HBZ1 PRELIMINARY; PRT; 179 AA.  
 AC Q9HBZ1;  
 DT 01-MAR-2001 (TReMBLrel. 16, Created)  
 DT 01-MAR-2001 (TReMBLrel. 16, Last sequence update)  
 DT 01-DEC-2001 (TReMBLrel. 19, Last annotation update)  
 DE GROWTH HORMONE VARIANT.  
 GN GHV.  
 OS Homo sapiens (Human).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  
 OX NCBI\_TaxID=9606;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=PITUITARY;  
 RA Gu J., Huang Q., Li N., Xu S., Han Z., Fu G., Chen Z.;  
 RT "A novel gene expressed in human pituitary.";  
 RL Submitted (SEP-1999) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AF185611; AAG09699.1; -.  
 DR HSSP; P01241; 1AXI.  
 DR InterPro; IPR001400; SOMATOTROPIN.

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DR Pfam; PF00103; hormone; 2.
DR PROSITE; PS00338; SOMATOTROPIN_2; 1.
SQ SEQUENCE 179 AA; 20561 MW; 0E875A91BE0B9B7E CRC64;

Query Match          14.1%; Score 19; DB 4; Length 179;
Best Local Similarity 100.0%; Pred. No. 9.3e-12;
Matches 19; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 66 EETQOKSNLELLRLISLLLI 84
   |||||
Db 91 EETQOKSNLELLRLISLLLI 109

RESULT 7
ID Q07368 PRELIMINARY; PRT; 212 AA.
AC Q07368;
DT 01-NOV-1996 (TREMBLrel. 01, Created)
DT 01-NOV-1996 (TREMBLrel. 01, Last sequence update)
DT 01-DEC-2001 (TREMBLrel. 19, Last annotation update)
DE SOMATOTROPIN 2 PRECURSOR (GROWTH HORMONE 2) (FRAGMENT).
OS Macaca mulatta (Rhesus macaque).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Cercopitheciidae;
OC Cercopitheciinae; Macaca.
OX NCBI_TaxID=9544;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=PLACENTA;
RX MEDLINE=94008724; PubMed=8404617;
RA Golos T.G., Durning M., Fisher J.M., Fowler P.D.;
RT "Cloning of four growth hormone/chorionic somatomotropin-related
RT complementary deoxyribonucleic acids differentially expressed during
RT pregnancy in the rhesus monkey placenta.";
RL Endocrinology 133:1744-1752(1993).
CC -!- FUNCTION: GROWTH HORMONE PLAYS AN IMPORTANT ROLE IN GROWTH
CC CONTROL.
CC -!- SUBCELLULAR LOCATION: SECRETED.
CC -!- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.
DR EMBL; L16553; AAA18840.1; -.
DR HSP; P01241; IAXI.
DR InterPro; IPR001400; SOMATOTROPIN.
DR Pfam; PF00103; hormone; 1.
DR PRINTS; PR00836; SOMATOTROPIN.
DR PROSITE; PS00338; SOMATOTROPIN_2; UNKNOWN_1.
KW Pituitary; Hormone; Signal.
FT SIGNAL <1 ? SOMATOTROPIN 2.
FT CHAIN ? 212 BY SIMILARITY.
FT DISULFID 74 186 BY SIMILARITY.
FT DISULFID 203 210 BY SIMILARITY.
SQ SEQUENCE 212 AA; 24525 MW; 27BC91106256E6F5 CRC64;

Query Match          14.1%; Score 19; DB 6; Length 212;
Best Local Similarity 100.0%; Pred. No. 1.1e-11;
Matches 19; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 66 EETQOKSNLELLRLISLLLI 84
   |||||
Db 86 EETQOKSNLELLRLISLLLI 104

RESULT 8
ID Q07367 PRELIMINARY; PRT; 217 AA.
AC Q07367;
DT 01-NOV-1996 (TREMBLrel. 01, Created)
DT 01-NOV-1996 (TREMBLrel. 01, Last sequence update)
DT 01-DEC-2001 (TREMBLrel. 19, Last annotation update)
DE SOMATOTROPIN 1 PRECURSOR (GROWTH HORMONE 1).
OS Macaca mulatta (Rhesus macaque).

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OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Cercopitheciidae;
OC Cercopitheciinae; Macaca.
OX NCBI_TaxID=9544;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=PLACENTA;
RX MEDLINE=94008724; PubMed=8404617;
RA Golos T.G., Durning M., Fisher J.M., Fowler P.D.;
RT "Cloning of four growth hormone/chorionic somatomotropin-related
RT complementary deoxyribonucleic acids differentially expressed during
RT pregnancy in the rhesus monkey placenta.";
RL Endocrinology 133:1744-1752(1993).
CC -!- FUNCTION: GROWTH HORMONE PLAYS AN IMPORTANT ROLE IN GROWTH
CC CONTROL.
CC -!- SUBCELLULAR LOCATION: SECRETED.
CC -!- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.
DR EMBL; L16552; AAA18839.1; -.
DR HSP; P01241; IAXI.
DR InterPro; IPR001400; SOMATOTROPIN.
DR Pfam; PF00103; hormone; 1.
DR PRINTS; PR00836; SOMATOTROPIN.
DR PROSITE; PS00338; SOMATOTROPIN_2; UNKNOWN_1.
KW Pituitary; Hormone; Signal.
FT SIGNAL 1 ? SOMATOTROPIN 1.
FT CHAIN ? 217 BY SIMILARITY.
FT DISULFID 79 191 BY SIMILARITY.
FT DISULFID 208 215 BY SIMILARITY.
SQ SEQUENCE 217 AA; 24942 MW; FF5AA8915131F2BC CRC64;

Query Match          14.1%; Score 19; DB 6; Length 217;
Best Local Similarity 100.0%; Pred. No. 1.1e-11;
Matches 19; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 66 EETQOKSNLELLRLISLLLI 84
   |||||
Db 91 EETQOKSNLELLRLISLLLI 109

RESULT 9
ID Q07369 PRELIMINARY; PRT; 217 AA.
AC Q07369;
DT 01-NOV-1996 (TREMBLrel. 01, Created)
DT 01-NOV-1996 (TREMBLrel. 01, Last sequence update)
DT 01-DEC-2001 (TREMBLrel. 19, Last annotation update)
DE SOMATOTROPIN 3 PRECURSOR (GROWTH HORMONE 3).
OS Macaca mulatta (Rhesus macaque).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Cercopitheciidae;
OC Cercopitheciinae; Macaca.
OX NCBI_TaxID=9544;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=PLACENTA;
RX MEDLINE=94008724; PubMed=8404617;
RA Golos T.G., Durning M., Fisher J.M., Fowler P.D.;
RT "Cloning of four growth hormone/chorionic somatomotropin-related
RT complementary deoxyribonucleic acids differentially expressed during
RT pregnancy in the rhesus monkey placenta.";
RL Endocrinology 133:1744-1752(1993).
CC -!- FUNCTION: GROWTH HORMONE PLAYS AN IMPORTANT ROLE IN GROWTH
CC CONTROL.
CC -!- SUBCELLULAR LOCATION: SECRETED.
CC -!- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.
DR EMBL; L16554; AAA18841.1; -.
DR HSP; P01241; IAXI.
DR InterPro; IPR001400; SOMATOTROPIN.
DR Pfam; PF00103; hormone; 1.
DR PRINTS; PR00836; SOMATOTROPIN.
DR PROSITE; PS00266; SOMATOTROPIN_1; 1.
DR PROSITE; PS00338; SOMATOTROPIN_2; UNKNOWN_1.

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GN HGH-V.  
OS Homo sapiens (Human).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi  
OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  
OX NCBI\_TaxID=9606;

RESULT 13	
Q9N265	
ID Q9N265	PRELIMINARY;
AC Q9N265;	PRT; 110 AA.
DT 01-OCT-2000	(TrEMBLrel. 15, Created)
DT 01-OCT-2000	(TrEMBLrel. 15, Last sequence update)

DT 01-DEC-2001 (Tremblrel. 19, Last annotation update)  
 DE GROWTH HORMONE (FRAGMENT).  
 GN BGH.  
 OS Bos taurus (Bovine).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 CC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;  
 OC Bovidae; Bovinae; Bos.  
 CC NCBI\_TaxID=9913;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Laziel A., Solter M.;  
 RT "DNA sequence of SSCP haplotypes at the bovine growth hormone (BGH)  
 gene.";  
 RL Anim. Genet. 0:0-0(1999).  
 DR EMBL; AF117349; AAF28805.1; -.  
 DR EMBL; AF117348; AAF28805.1; JOINED.  
 DR HSSP; P01246; IBST.  
 DR InterPro; IPR001400; SOMATOTROPIN.  
 DR Pfam; PF00103; hormone; 1.  
 DR PRINTS; PR00836; SOMATOTROPIN.  
 DR PROSITE; PS00266; SOMATOTROPIN\_1; 1.  
 FT NON\_TER 1  
 FT NON\_TER 110 110  
 SQ SEQUENCE 110 AA; 12454 MW; 0A356B7B30A73D1A CRC64;

Query Match 8.1%; Score 11; DB 6; Length 110;  
 Best Local Similarity 100.0%; Pred. No. 0.0014;  
 Matches 11; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 74 LELLRISLLLI 84  
 Db 26 LELLRISLLLI 36

RESULT 14  
 Q9TSGO PRELIMINARY; PRT; 120 AA.  
 AC Q9TSGO;  
 DT 01-MAY-2000 (Tremblrel. 13, Created)  
 DT 01-MAY-2000 (Tremblrel. 13, Last sequence update)  
 DT 01-JUN-2001 (Tremblrel. 17, Last annotation update)  
 DE GROWTH HORMONE (FRAGMENT).  
 GN GH.  
 OS Ovis aries (Sheep).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 CC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;  
 OC Bovidae; Caprinae; Ovis.  
 CC NCBI\_TaxID=9940;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Oflr R., Gootwine B.;  
 RT "Sequence analysis of the GH1, GH2-N and GH2-Z copies of the ovine  
 growth hormone gene.";  
 RL Mamm. Genome 0:0-0(1997).  
 DR EMBL; AF002120; AAB564120.1; -.  
 DR HSSP; P01246; IBST.  
 DR InterPro; IPR001400; SOMATOTROPIN.  
 DR Pfam; PF00103; hormone; 1.  
 DR PRINTS; PR00836; SOMATOTROPIN.  
 DR PROSITE; PS00338; SOMATOTROPIN\_2; 1.  
 FT NON\_TER 1  
 SQ SEQUENCE 120 AA; 13972 MW; 2622C4FA10294C52 CRC64;

Query Match 8.1%; Score 11; DB 6; Length 120;  
 Best Local Similarity 100.0%; Pred. No. 0.0015;  
 Matches 11; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 74 LELLRISLLLI 84  
 Db 2 LELLRISLLLI 12

## RESULT 15

Q9TQW9 PRELIMINARY; PRT; 192 AA.  
 AC Q9TQW9;  
 DT 01-MAY-2000 (Tremblrel. 13, Created)  
 DT 01-MAY-2000 (Tremblrel. 13, Last sequence update)  
 DT 01-JUN-2001 (Tremblrel. 17, Last annotation update)  
 DE GROWTH HORMONE.  
 OS Bos indicus (Zebu), and  
 OS Bubalus bubalis (Domestic water buffalo).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 CC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;  
 OC Bovidae; Bovinae; Bos.  
 CC NCBI\_TaxID=9915, 89462;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Mukhopadhyay U.K., Sahni G.;  
 RT "Indian zebu cattle growth hormone cDNA.";  
 RL Submitted (AUG-1999) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AF177289; AAF03132.1; -.  
 DR EMBL; AF177288; AAF03131.1; -.  
 DR HSSP; P01246; IBST.  
 DR InterPro; IPR001400; SOMATOTROPIN.  
 DR Pfam; PF00103; hormone; 1.  
 DR PRINTS; PR00836; SOMATOTROPIN.  
 DR PROSITE; PS00266; SOMATOTROPIN\_1; 1.  
 DR PROSITE; PS00338; SOMATOTROPIN\_2; 1.  
 SQ SEQUENCE 192 AA; 21947 MW; 0C7B5EAF606B3ECC CRC64;

Query Match 8.1%; Score 11; DB 6; Length 192;  
 Best Local Similarity 100.0%; Pred. No. 0.0023;  
 Matches 11; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 74 LELLRISLLLI 84  
 Db 74 LELLRISLLLI 84

Search completed: September 25, 2002, 10:09:36  
 Job time: 239 sec







GenCore version 4.5  
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OM protein - protein search, using sw model

Run on: September 25, 2002, 09:57:42 : Search time 29.93 Seconds  
(without alignments)  
501.001 Million cell updates/sec

Title: US-09-819-094-18

Perfect score: 694

Sequence: 1 MVQTVPLSRFLDHLMLQAHK.....KDLLEGITQLMGRLEDGSPR 135

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 747574 seqs, 111073796 residues

Total number of hits satisfying chosen parameters: 747574

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : A\_Geneseq\_032802.\*

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22: /SIDS1/gcgdata/hold-geneseq/geneseq-emb1/AA2001.DAT.*

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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

#### SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	694	100.0	135	AAW92263	Human anti-angiogenic
2	680	98.0	192	AAW92262	Human anti-angiogenic
3	675	97.3	191	AAW92261	Human placental Ia
4	671	96.7	191	AAW92260	Human placental Ia
5	667	96.1	229	AAU21684	Novel human neoplasia
6	577	83.1	150	AAO02111	Human polypeptide
7	563	81.1	134	AAW92265	Human anti-angiogenic
8	563	81.1	140	AAW91041	Human growth hormone
9	563	81.1	144	AAW905313	Segment of B-cell
10	563	81.1	192	AAW90129	Human growth hormone
11	563	81.1	192	AAW92264	Human anti-angiogenic

12	563	81.1	261	10	AAW91299	Human nerve growth
13	563	81.1	262	12	AAW11740	Human growth hormone
14	560	80.7	138	9	AAW81226	Sequence of proteol
15	560	80.7	190	21	AAW84644	Amino acid sequenc
16	560	80.7	191	20	AAW15809	Primary amino acid
17	560	80.7	191	20	AAW04396	Natural human 22kd
18	560	80.7	191	21	AAW78425	Human growth hormo
19	560	80.7	193	8	AAW70260	Met-Asp-human grow
20	560	80.7	194	20	AAW30530	Recombinant human
21	560	80.7	212	7	AAW60234	Sequence of AP sig
22	560	80.7	214	7	AAW60232	Sequence of Escher
23	560	80.7	214	7	AAW60233	Sequence of Escher
24	560	80.7	214	11	AAW05043	Human growth hormo
25	560	80.7	214	18	AAW10425	Synthetic human gr
26	560	80.7	214	20	AAW31766	Human growth hormo
27	560	80.7	214	21	AAW78424	Human growth hormo
28	560	80.7	214	21	AAW78460	Human growth hormo
29	560	80.7	217	11	AAW05169	Human growth hormo
30	560	80.7	217	21	AAW26769	Secretory cell pro
31	560	80.7	217	22	AAW35428	Secretory cell lin
32	560	80.7	241	20	AAW88526	Fusion of killer t
33	560	80.7	244	12	AAW10042	Plasmid pOW885 hum
34	560	80.7	245	21	AAW69791	WPSP-MWpmp20-(His
35	560	80.7	262	7	AAW61033	Human beta-nerve g
36	560	80.7	274	21	AAW26776	Human growth hormo
37	560	80.7	360	21	AAW26777	Human growth hormo
38	560	80.7	397	12	AAW10043	Plasmid pOW360 enc
39	560	80.7	407	22	AAW49195	Human growth hormo
40	557	80.3	191	7	AAW60016	Sequence of human
41	557	80.3	191	19	AAW71289	Human growth hormo
42	557	80.3	217	7	AAW60719	Sequence of pre an
43	557	80.3	310	11	AAW03255	Fusion protein of
44	556	80.1	191	13	AAW24270	Mature human growt
45	556	80.1	191	13	AAW24271	Mature human growt

#### ALIGNMENTS

#### RESULT 1

AAW92263

ID AAW92263 standard; Protein; 135 AA.

XX

AC AAW92263;

XX 08-JUN-1999 (first entry)

DT Human anti-angiogenic peptide 16K hPL Met-1Arg134.

DE Human; anti-angiogenic; prolactin; placental lactogen; hPL; angiogenesis; growth hormone; hGH; hGH-V; capillary endothelial cell proliferation; placental vascularisation; pregnancy; treatment; angiogenic disease; tumour; inhibitor; malignant; angiofibroma; arteriovenous malformation; arthritis; atherosclerotic plaques; corneal graft neovascularisation; wound healing; proliferative retinopathy; macular degeneration; trachoma; granuloma; glaucoma; ocular; uveitis; fracture; Osler-Weber syndrome; psoriasis; fibroplasia; scleroderma; Kaposi's sarcoma; vascular adhesion; ulcer; leukaemia; reproductive disorder; contraceptive agent; gene therapy; pre-eclampsia; intrauterine growth retardation; placental dysfunction.

XX Homo sapiens.

OS WO9851323-Al.

PN 19-NOV-1998.

XX 12-MAY-1998;

PF 98WO-US09691.

XX 13-MAY-1997;

PR 97US-0046394.

XX (REGC ) UNIV CALIFORNIA.

PA

XX





XX Recombinant production of variant polypeptides, e.g. growth hormone  
PT variants with altered receptor specificity, using cells transformed  
PT with DNA selected by scanning mutagenesis in at least one peptide  
PT domain  
XX Example 2; Fig 2; 83pp; English.  
PS The present invention describes the production of a polypeptide variant  
XX (I) comprising segment substituted and residue substituted growth  
CC hormone, prolactin or placental lactogens. The method is particularly  
CC used to produce variants of growth hormone (GH), prolactin or placental  
CC lactogen, but may also be applied to receptors, interferons, and  
CC colony-stimulating factors. A particular application is the production  
CC of human GH variants with altered (decreased or increased) binding  
CC interaction with the somatogenic receptor, i.e. compounds useful as  
CC human GH (antagonists and which may have higher potency for stimulating  
CC other human GH receptors, and as standards or tracers in immunoassays  
CC for human GH. This method of DNA selection identifies the biologically  
CC active residues in active domains, including those critical for  
CC interaction with different targets. The present sequence represents a  
CC human placental lactogen amino acid sequence, which is used in the  
CC exemplification of the present invention.  
XX  
SQ Sequence 191 AA;

Query Match 96.7%; Score 671; DB 21; Length 191;  
Best Local Similarity 98.5%; Pred.No. 1.5e-58;  
Matches 131; Conservative 0; Mismatches 2; Indels 0; Gaps 0;  
QY 3 QTVPLSLFDHMLQAHRAHOLAIDTVOERETVYPKDKYSLFLHDSQTSFSDSIPTP 62  
Db |||||||||||||||||||||||||||||||||||||||||||||||||||||  
2 qcvplslfdhamqahrahahlaidtygefteyipkdkysflhdqtsfcfsdsiptp 61  
QY 63 SMNEEQKSNLELRISLLIESWLEPVRFLRSMFANNLVYDTSDDYHLLKDLKEGI 122  
Db |||||||||||||||||||||||||||||||||||||||||||||||||||||  
62 smneetqkqnlelrlislllieswlepvrrflrmfannlvdytdsddyhllkdlkegi 121  
QY 123 QTLGRLGEGSPR 135  
Db |||||||||||  
122 qtlmgrledgarr 134

RESULT 5  
AAU21684  
ID AAU21684 standard; Protein; 229 AA.  
XX  
AC AAU21684;  
XX  
DT 04-DEC-2001 (first entry)  
XX  
DE Novel human neoplastic disease associated polypeptide #117.  
XX  
KW Human; neoplastic disease associated polypeptide; cancer;  
KW hyperproliferative disorder; neural disorder; immune system disorder;  
KW muscular disorder; reproductive disorder; gastrointestinal disorder;  
KW pulmonary disorder; cardiovascular disorder; renal disorder;  
KW neuroprotective; cytostatic; anti inflammatory; vasotropic.  
XX  
OS Homo sapiens.  
XX  
XX WO200155163-A1.  
XX  
PD 02-AUG-2001.  
XX  
PF 17-JAN-2001; 2001WO-US01358.  
XX  
XX 31-JAN-2000; 2000US-0179065.  
PR 04-FEB-2000; 2000US-0180628.  
PR 24-FEB-2000; 2000US-0184664.  
PR 02-MAR-2000; 2000US-0186350.  
PR 16-MAR-2000; 2000US-0189874.  
PR

PR 17-MAR-2000; 2000US-0190076.  
PR 18-APR-2000; 2000US-0198123.  
PR 19-MAY-2000; 2000US-0205515.  
PR 07-JUN-2000; 2000US-0209467.  
PR 28-JUN-2000; 2000US-0214886.  
PR 30-JUN-2000; 2000US-0215135.  
PR 07-JUL-2000; 2000US-0216647.  
PR 07-JUL-2000; 2000US-0216880.  
PR 11-JUL-2000; 2000US-0217487.  
PR 14-JUL-2000; 2000US-0218290.  
PR 26-JUL-2000; 2000US-0220963.  
PR 26-JUL-2000; 2000US-0220964.  
PR 14-AUG-2000; 2000US-0224518.  
PR 14-AUG-2000; 2000US-0224519.  
PR 14-AUG-2000; 2000US-0225213.  
PR 14-AUG-2000; 2000US-0225214.  
PR 14-AUG-2000; 2000US-0225266.  
PR 14-AUG-2000; 2000US-0225267.  
PR 14-AUG-2000; 2000US-0225268.  
PR 14-AUG-2000; 2000US-0225270.  
PR 14-AUG-2000; 2000US-0225447.  
PR 14-AUG-2000; 2000US-0225757.  
PR 14-AUG-2000; 2000US-0225758.  
PR 14-AUG-2000; 2000US-0225759.  
PR 18-AUG-2000; 2000US-0226279.  
PR 22-AUG-2000; 2000US-0226681.  
PR 22-AUG-2000; 2000US-0226868.  
PR 22-AUG-2000; 2000US-0227182.  
PR 23-AUG-2000; 2000US-0227009.  
PR 30-AUG-2000; 2000US-0228924.  
PR 01-SEP-2000; 2000US-0229287.  
PR 01-SEP-2000; 2000US-0229343.  
PR 01-SEP-2000; 2000US-0229344.  
PR 01-SEP-2000; 2000US-0229345.  
PR 05-SEP-2000; 2000US-0229509.  
PR 05-SEP-2000; 2000US-0229513.  
PR 06-SEP-2000; 2000US-0230437.  
PR 06-SEP-2000; 2000US-0230438.  
PR 08-SEP-2000; 2000US-0231242.  
PR 08-SEP-2000; 2000US-0231243.  
PR 08-SEP-2000; 2000US-0231244.  
PR 08-SEP-2000; 2000US-0231413.  
PR 08-SEP-2000; 2000US-0231414.  
PR 08-SEP-2000; 2000US-0232080.  
PR 08-SEP-2000; 2000US-0232081.  
PR 12-SEP-2000; 2000US-0231968.  
PR 14-SEP-2000; 2000US-0232397.  
PR 14-SEP-2000; 2000US-0232398.  
PR 14-SEP-2000; 2000US-0232399.  
PR 14-SEP-2000; 2000US-0232400.  
PR 14-SEP-2000; 2000US-0232401.  
PR 14-SEP-2000; 2000US-0233063.  
PR 14-SEP-2000; 2000US-0233064.  
PR 14-SEP-2000; 2000US-0233065.  
PR 21-SEP-2000; 2000US-0234223.  
PR 21-SEP-2000; 2000US-0234274.  
PR 25-SEP-2000; 2000US-0234997.  
PR 25-SEP-2000; 2000US-0234998.  
PR 26-SEP-2000; 2000US-0235484.  
PR 27-SEP-2000; 2000US-0235834.  
PR 27-SEP-2000; 2000US-0235836.  
PR 29-SEP-2000; 2000US-0236327.  
PR 29-SEP-2000; 2000US-0236367.  
PR 29-SEP-2000; 2000US-0236368.  
PR 29-SEP-2000; 2000US-0236369.  
PR 29-SEP-2000; 2000US-0236370.  
PR 02-OCT-2000; 2000US-0236802.  
PR 02-OCT-2000; 2000US-0237037.  
PR 02-OCT-2000; 2000US-0237038.  
PR 02-OCT-2000; 2000US-0237039.  
PR 02-OCT-2000; 2000US-0237040.  
PR 13-OCT-2000; 2000US-0239935.  
PR



PT disorders -  
PS Claim 20; SEQ ID NO 16003; 1399pp + Sequence Listing; English.  
XX  
XX The invention relates to human polynucleotides (AAI79941-AAI93841) and  
CC the encoded proteins (AAO00010-AAO13910) that exhibit activity elating to  
CC cytokine, cell proliferation or cell differentiation or which may induce  
CC production of other cytokines in other cell populations. The  
CC polynucleotides and polypeptides are useful in gene therapy, vaccines or  
CC peptide therapy. The polypeptides have various cytokine-like activities,  
CC e.g. stem cell growth factor activity, haematopoiesis regulating  
CC activity, tissue growth factor activity, immunomodulatory activity and  
CC activin/inhibin activity and may be useful in the diagnosis and/or  
CC treatment of cancer, leukaemia, nervous system disorders, arthritis and  
CC inflammation.  
CC Note: The sequence data for this patent did not form part of the printed  
CC specification, but was obtained in electronic format directly from WIPO  
CC at ftp.wipo.int/pub/published\_pct\_sequences.  
XX  
SQ Sequence 150 AA;

Query Match 83.1%; Score 577; DB 22; Length 150;  
Best Local Similarity 93.3%; Pred. No. 2.1e-49;  
Matches 112; Conservative 0; Mismatches 8; Indels 0; Gaps 0;  
Qy 11 FDHAMLQAHRAHQLAIDTYQFEETYPKDKYSLHDSQTSFSFSDIPTPSNMETQ 70  
Db 3 fdhmlqahrahhlaidayhefeetyipkdqysflhdsqtscfsdpsptfnnmeetq 62  
Qy 71 KSNLELRISLLIESWLEPVRFLSRMFANNLVYDTSDDYHLLKDLREGIOTLMGRLE 130  
Db 63 ksnlelrissllieswlepvrflsrmfannlvdytdsddynflkdlkeegiqtlmgrae 122

RESULT 7  
AAW92265  
ID AAW92265 standard; Protein; 134 AA.  
XX  
XX AAW92265;  
AC  
XX  
DT 08-JUN-1999 (first entry)  
XX  
DE Human anti-angiogenic peptide 16K hGH Met-1Pro133.  
XX  
KW Human; anti-angiogenic; prolactin; placental lactogen; hPL; angiogenesis;  
KW growth hormone; hGH; hGH-V; capillary endothelial cell proliferation;  
KW placental vascularisation; pregnancy; treatment; angiogenic disease;  
KW tumour; inhibitor; malignant; angiofibroma; arteriovenous malformation;  
KW arthritis; atherosclerotic plaques; corneal graft neovascularisation;  
KW wound healing; proliferative retinopathy; macular degeneration; trachoma;  
KW granulation; glaucoma; ocular; uveitis; fracture; Osler-Weber syndrome;  
KW psoriasis; fibroplasia; scleroderma; Kaposi's sarcoma; vascular adhesion;  
KW ulcer; leukaemia; reproductive disorder; contraceptive agent;  
KW gene therapy; pre-eclampsia; intrauterine growth retardation;  
KW placental dysfunction.  
XX  
XX Homo sapiens.  
OS  
XX  
XX WO9851323-A1.  
PN  
XX  
XX 19-NOV-1998.  
PD  
XX  
XX 12-MAY-1998; 98WO-US09691.  
PF  
XX  
XX 13-MAY-1997; 97US-0046394.  
PR  
XX  
XX (REGC ) UNIV CALIFORNIA.  
PA  
XX  
XX Martial JA, Struman I, Taylor R, Weiner RI;  
PI  
XX  
XX WPI; 1998-045192/04.  
DR  
XX  
XX N-PSDB; AAX01707.

XX  
PT New anti-angiogenic peptides - comprise N-terminal fragments of  
PT human placental lactogen, human growth hormone, growth hormone  
PT variant or human prolactin  
XX  
PS Claim 4; Page 49-50; 87pp; English.  
XX  
CC This invention describes novel human anti-angiogenic peptides derived  
CC from 10 to 150 consecutive amino acids selected from the N-terminal end  
CC of human placental lactogen (hPL), human growth hormone (hGH), growth  
CC hormone variant (hGH-V), or human prolactin. Such peptides (i) inhibit  
CC capillary endothelial cell proliferation and organisation (ii) inhibit  
CC angiogenesis in chick chorioallantoic membrane and (iii) binds to at  
CC least one specific receptor which does not bind an intact full length  
CC hGH, hPL, prolactin or hGH-V. The invention also describes a method for  
CC diagnosing a probable abnormality of placental vascularisation during  
CC pregnancy. The peptides can be used for treating an angiogenic disease in  
CC a subject, for inhibiting tumour formation or growth in a patient or for  
CC modulating vascularisation of a patient's placenta. In particular, the  
CC peptides can be used for preventing or treating e.g. malignant tumours,  
CC angiofibroma, arteriovenous malformation, corneal graft neovascularisation,  
CC arthritis, atherosclerotic plaques, corneal graft neovascularisation,  
CC retinopathy, macular degeneration, granulations such as diabetic  
CC in haemophilic joints, inappropriate vascularisation in wound healing  
CC such as hypertrophic scars or keloid scars, neovascular glaucoma, ocular  
CC tumour, uveitis, non-union fractures, Osler-Weber syndrome, psoriasis,  
CC pyogenic glaucoma, retrolental fibroplasia, scleroderma, solid tumours,  
CC Kaposi's sarcoma, trachoma, vascular adhesions, chronic varicose ulcers,  
CC leukaemia, and reproductive disorders such as follicular and luteal cysts  
CC and choriocarcinoma. They can also be used as contraceptive agents. DNA  
CC encoding the peptides can be used in gene therapy. The measurement of  
CC abnormal levels of N-terminal fragments of hGH, hGH-V, prolactin or hPL  
CC can be used in assays for impairment of vascular development associated  
CC with pre-eclampsia, intrauterine growth retardation, and placental  
CC dysfunction.  
XX  
SQ Sequence 134 AA;

Query Match 81.1%; Score 563; DB 20; Length 134;  
Best Local Similarity 82.1%; Pred. No. 4.4e-48;  
Matches 110; Conservative 11; Mismatches 13; Indels 0; Gaps 0;  
Qy 1 MVQTVPLSLFDHMLQAHRAHQLAIDTYQFEETYPKDKYSLHDSQTSFSFSDSTP 60  
Db 1 mftplslrfdhmlqahrahqlaidtyqfeeyipkdkysflhdsqtscfspsis 60  
Qy 61 TPSNMEETQOKSNLELRISLLIESWLEPVRFLSRMFANNLVYDTSDDYHLLKDLLEE 120  
Db 61 tpsnmeetqgksnlelrissllieswlepvrflsrmfanslvvgasdsenvydlkdllee 120  
Qy 121 GIQTLMGRLDGSP 134  
Db 121 giqtlmgrldegsp 134

RESULT 8  
AAP91041  
ID AAP91041 standard; protein; 140 AA.  
XX  
XX AAP91041;  
AC  
XX  
XX 14-DEC-1989 (first entry).  
DT  
XX  
XX Human growth hormone segment.  
DE  
XX  
XX Human growth hormone; fusion protein; thrombin;  
KW geriatric dementia; nervous disorders; human nerve factor.  
KW  
XX  
XX Homo sapiens (human).  
OS  
XX  
XX EP329175-A.



```

XX 23-AUG-1989.
PD
XX
XX 17-FEB-1989; 89EP-0102795.
PF
XX
PR 19-FEB-1988; 88JP-0035042.
PR
XX (TOYJ ) TOSOH CORP.
PA
XX Ohtsuka E;
PI
XX WPI; 1989-243092/34.
DR
XX
XX New human nerve growth factor gene encoding fusion protein
PT - having cleavage site for thrombin, useful for treating geriatric
PT dementia, etc.
PT
XX
XX Disclosure; page 21; 38pp; English.
PS
XX Human growth hormone segment, used at the N-terminal of a fusion
CC protein, which contains a thrombin recognition site, and human beta nerve
CC growth factor (beta-NGF) at the C-terminal. Beta-NGF can be used to
CC control geriatric dementia and other nervous disorders, and can be
CC released from the fusion protein by incubation with thrombin (see
CC AAN90577-8, AAP91034, AAP91299).
XX
XX Sequence 140 AA;
SQ
Query Match 81.1%; Score 563; DB 10; Length 140;
Best Local Similarity 81.5%; Pred. No. 4.7e-48;
Matches 110; Conservative 11; Mismatches 14; Indels 0; Gaps 0;
QY 1 MVQTVPLSLFDHMLQAHRAHQAIDTYQEFETYIPKQKYSFLHDSQTSFSDSIP 60
DB 1 mftptplsrlfdnamlrhrlhqlafdyqefeeayipkeqkysflqpqlcfesesip 60
QY 61 TPSNMEETQOKSNLELLRISLLIESWLEPVYFLRSMFANNLVYDTSDDYHLKDLLE 120
DB 61 tpsnreetqgksnlellrisllligswlepqvflrsfanslvvgasdsnvdydkldee 120
QY 121 GIQTLMGRLDGSPR 135
DB 121 giqtlmgrldgspr 135
Query Match 81.1%; Score 563; DB 10; Length 140;
Best Local Similarity 81.5%; Pred. No. 4.7e-48;
Matches 110; Conservative 11; Mismatches 14; Indels 0; Gaps 0;
QY 1 MVQTVPLSLFDHMLQAHRAHQAIDTYQEFETYIPKQKYSFLHDSQTSFSDSIP 60
DB 1 mftptplsrlfdnamlrhrlhqlafdyqefeeayipkeqkysflqpqlcfesesip 60
QY 61 TPSNMEETQOKSNLELLRISLLIESWLEPVYFLRSMFANNLVYDTSDDYHLKDLLE 120
DB 61 tpsnreetqgksnlellrisllligswlepqvflrsfanslvvgasdsnvdydkldee 120
QY 121 GIQTLMGRLDGSPR 135
DB 121 giqtlmgrldgspr 135
RESULT 9
AAR05313
ID AAR05313 standard; protein; 144 AA.
AC AAR05313;
XX
XX 19-JUL-1990 (first entry)
DT
XX Segment of B-cell stimulatory factor-2 (IL-5).
DE
XX B-cell stimulatory factor-2; interleukin-5.
KW
XX Homo sapiens.
XX
XX JP02013375-A.
PN
XX
XX 17-JAN-1990.
PD
XX
XX 01-JUL-1988; 88JP-0162556.
PF
XX
XX 01-JUL-1988; 88JP-0162556.
PR
XX (TOYJ ) TOSOH CORP.
PA
XX WPI; 1990-062207/09.
XX
XX N-PSDB; AAR02028.
XX

```

```

PT Prepn. of human B-cell differentiation factor - from specified DNA
PT sequence segment, by recombinant DNA technique, gives protein of
PT specified amino acid sequence.
XX
XX Disclosure; Page 9; 17pp; Japanese.
XX
XX The sequence encoding this protein can be fused with DNA encoding B-cell
CC differentiation factor (IL-6) and ligated into an expression vector for
CC prodn. of a fusion protein.
CC See also AAR05311.
XX
XX Sequence 144 AA;
SQ
Query Match 81.1%; Score 563; DB 11; Length 144;
Best Local Similarity 81.5%; Pred. No. 4.8e-48;
Matches 110; Conservative 11; Mismatches 14; Indels 0; Gaps 0;
QY 1 MVQTVPLSLFDHMLQAHRAHQAIDTYQEFETYIPKQKYSFLHDSQTSFSDSIP 60
DB 1 mftptplsrlfdnamlrhrlhqlafdyqefeeayipkeqkysflenpqtscfesesip 60
QY 61 TPSNMEETQOKSNLELLRISLLIESWLEPVYFLRSMFANNLVYDTSDDYHLKDLLE 120
DB 61 tpsnreetqgksnlellrisllligswlepqvflrsfanslvvgasdsnvdydkldee 120
QY 121 GIQTLMGRLDGSPR 135
DB 121 giqtlmgrldgspr 135
RESULT 10
AAR05129
ID AAP901129 standard; protein; 192 AA.
XX
AC AAP90129;
XX
XX 06-FEB-1996 (revised)
DT
XX 01-NOV-1989 (first entry)
DT
XX Human growth hormone.
DE
XX Human growth hormone; fusion protein; recombinant
KW vector.
KW
XX Homo sapiens (Human).
XX
XX JP01144981-A.
PN
XX
XX 07-JUN-1989.
PD
XX
XX 02-DEC-1987; 87JP-0304937.
PF
XX
XX 02-DEC-1987; 87JP-0304937.
PR
XX (WAKU ) WAKUNGA SEIYAKU KK.
XX
XX WPI; 1989-209284/29.
DR
XX N-PSDB; AAN90269.
XX
XX Recombinant vector contg. fusion protein - consisting of human
PT growth hormone or deriv. ligated to foreign protein, for stability
PT and high yield.
PT
XX
XX Disclosure; Fig 1; 19pp; Japanese.
XX
XX The invention consists of a vector contg. a fusion protein which is
CC formed by ligating, downstream of a promoter, hGH or a deriv. (pref.
CC formed by substn. of Met-14 with Leu) and a foreign protein.
CC Stability of the vector in the host is greatly increased so the
CC protein yield is higher.
XX
XX Sequence 192 AA;
SQ

```

CC	Query Match	81.1%;	Score 563;	DB 10;	Length 192;
CC	Best Local Similarity	81.5%;	Pred. No. 6.8e-48;		
CC	Matches 110;	Conservative 11;	Mismatches 14;	Indels 0;	Gaps 0;
QY	1	MVQIVPLSRLEPDHMLQAHRAHQIAIDTYQEFETYIPKQKYSFLHDSQTSFSFSDSIP	60		
Db	1	mftptplsrlfndamlrahrlhqlafdyqefeeayipkeqysflqpqtscfsesip	60		
QY	61	TPSNMEETQOKSNLELLRISLLIESWLEPVFRFLSRMFANNLVYDTSDDYHLLKDLLE	120		
Db	61	tpsnreetqknslellrisllilqswlepqvflrsfvanslyvgadsnvdyllkdee	120		
QY	121	GIQTLMGRLDGSPR	135		
Db	121	giqlmgrldgspr	135		
CC	RESULT 11				
CC	ID	AAW92264	standard; Protein; 192 AA.		
CC	XX	AAW92264;			
CC	DT	08-JUN-1999	(first entry)		
CC	XX	Human anti-angiogenic peptide hGH Met-1Phe191.			
CC	XX	Human; anti-angiogenic; prolactin; placental lactogen; hPL; angiogenesis;			
CC	KW	growth hormone; hGH; hGH-V; capillary endothelial cell proliferation;			
CC	KW	placental vascularisation; pregnancy; treatment; angiogenic disease;			
CC	KW	tumour; inhibitor; malignant; angiofibroma; arteriovenous malformation;			
CC	KW	arthritis; atherosclerotic plaques; corneal graft neovascularisation;			
CC	KW	wound healing; proliferative retinopathy; macular degeneration; trachoma;			
CC	KW	granulation; glaucoma; ocular; uveitis; fracture; Osler-Weber syndrome;			
CC	KW	psoriasis; fibroplasia; scleroderma; Kaposi's sarcoma; vascular adhesion;			
CC	KW	ulcer; leukaemia; reproductive disorder; contraceptive agent;			
CC	KW	gene therapy; pre-eclampsia; intrauterine growth retardation;			
CC	XX	placental dysfunction.			
CC	OS	Homo sapiens.			
CC	XX	WO9851323-A1.			
CC	PN	19-NOV-1998.			
CC	PD	12-MAY-1998; 98WO-US09691.			
CC	XX	13-MAY-1997; 97US-0046394.			
CC	PR	(REGC ) UNIV CALIFORNIA.			
CC	PA	Martial JA, Struman I, Taylor R, Weiner RI;			
CC	XX	WPI; 1999-045192/04.			
CC	PI	N-PSDB; AAX01706.			
CC	DR	New anti-angiogenic peptides - comprise N-terminal fragments of			
CC	XX	human placental lactogen, human growth hormone, growth hormone			
CC	PT	variant or human prolactin			
CC	XX	Example 3; Page 49; 87pp; English.			
CC	PS	This invention describes novel human anti-angiogenic peptides derived			
CC	XX	from 10 to 150 consecutive amino acids selected from the N-terminal end			
CC	CC	of human placental lactogen (hPL), human growth hormone (hGH), growth			
CC	CC	hormone variant (hGH-V), or human prolactin. Such peptides (i) inhibit			
CC	CC	capillary endothelial cell proliferation and organisation (ii) inhibit			
CC	CC	angiogenesis in chick chorioallantoic membrane and (iii) binds to at			
CC	CC	least one specific receptor which does not bind an intact full length			
CC	CC	hGH, hPL, prolactin or hGH-V. The invention also describes a method for			
CC	CC	diagnosing a probable abnormality of placental vascularisation during			
CC	CC	pregnancy. The peptides can be used for treating an angiogenic disease in			
CC	CC	a subject, for inhibiting tumour formation or growth in a patient or for			
CC	CC	modulating vascularisation of a patient's placenta. In particular, the			
CC	CC	peptides can be used for preventing or treating e.g. malignant tumours,			
CC	CC	angiofibroma, arteriovenous malformation, arthritic such as rheumatoid			
CC	CC	arthritis, atherosclerotic plaques, corneal graft neovascularisation,			
CC	CC	delayed wound healing, proliferation, granulations such as those occurring			
CC	CC	in haemophilic joints, inappropriate vascularisation in wound healing			
CC	CC	such as hypertrophic scars or keloid scars, neovascular glaucoma, ocular			
CC	CC	tumour, uveitis, non-union fractures, Osler-Weber syndrome, psoriasis,			
CC	CC	pyogenic glaucoma, retrolental fibroplasia, scleroderma, solid tumours,			
CC	CC	Kaposi's sarcoma, trachoma, vascular adhesions, chronic varicose ulcers,			
CC	CC	leukaemia, and reproductive disorders such as follicular and luteal cysts			
CC	CC	and choriocarcinoma. They can also be used as contraceptive agents. DNA			
CC	CC	encoding the peptides can be used in gene therapy. The measurement of			
CC	CC	abnormal levels of N-terminal fragments of hGH, hGH-V, prolactin or hPL			
CC	CC	can be used in assays for impairment of vascular development associated			
CC	CC	with pre-eclampsia, intrauterine growth retardation, and placental			
CC	CC	dysfunction.			
CC	XX	Sequence 192 AA;			
CC	SQ	Query Match	81.1%;	Score 563;	DB 20;
CC	XX	Best Local Similarity	81.5%;	Pred. No. 6.8e-48;	Length 192;
CC	XX	Matches 110;	Conservative 11;	Mismatches 14;	Indels 0;
CC	XX	Gaps 0;			
QY	1	MVQIVPLSRLEPDHMLQAHRAHQIAIDTYQEFETYIPKQKYSFLHDSQTSFSFSDSIP	60		
Db	1	mftptplsrlfndamlrahrlhqlafdyqefeeayipkeqysflqpqtscfsesip	60		
QY	61	TPSNMEETQOKSNLELLRISLLIESWLEPVFRFLSRMFANNLVYDTSDDYHLLKDLLE	120		
Db	61	tpsnreetqknslellrisllilqswlepqvflrsfvanslyvgadsnvdyllkdee	120		
QY	121	GIQTLMGRLDGSPR	135		
Db	121	giqlmgrldgspr	135		
CC	RESULT 12				
CC	XX	AAP91299	standard; protein; 261 AA.		
CC	ID	AAP91299	standard; protein; 261 AA.		
CC	XX	AC	AAP91299;		
CC	XX	DT	14-DEC-1989	(first entry).	
CC	DE	Human nerve growth factor and human growth hormone fusion protein.			
CC	XX	Human nerve growth factor; fusion protein; thrombin;			
CC	KW	geriatric dementia; nervous disorders; human growth hormone.			
CC	OS	Homo sapiens (human).			
CC	XX	Key	Location/Qualifiers		
CC	FT	Region	1..140		
CC	FT	Region	141..143		
CC	FT	Region	144..261		
CC	XX	EP329175-A.			
CC	XX	23-AUG-1989.			
CC	PD	17-FEB-1989;	89EP-0102795.		
CC	XX	19-FEB-1988;	88JP-0035042.		
CC	XX	(TOYJ ) TOSOH CORP.			
CC	PA	Ohtsuka E;			
CC	PI				
CC	XX				

DR WPI; 1989-243092/34.  
 XX New human nerve growth factor gene encoding fusion protein  
 PT - having cleavage site for thrombin, useful for treating geriatric  
 PT dementia, etc.  
 XX  
 XX  
 PS Claim 36; page 31-32; 38pp; English.  
 XX  
 CC Fusion protein consisting of human growth hormone at the  
 CC N-terminal end (1st region), a 3 amino acid sequence representing  
 CC thrombin recognition site, and human beta nerve growth factor (beta-NGF)  
 CC at the C-terminal. Beta-NGF can be used to control geriatric dementia  
 CC and other nervous disorders, and can be released from the fusion  
 CC protein by incubation with thrombin (see AAN90577-8, AAP91034,  
 CC AAP91041).  
 XX  
 XX Sequence 261 AA;  
 SQ

Query Match 81.1%; Score 563; DB 10; Length 261;  
 Best Local Similarity 81.5%; Pred. No. 9.8e-48;  
 Matches 110; Conservative 11; Mismatches 14; Indels 0; Gaps 0;

QY 1 MVOTVPLSLRFDHMLQAHRAHQLAIDTYOEFEETIYIPKQKYSFLHDSQTSFSDSIP 60  
 Db 1 mftptlslrlfdnamlrahrlhqlafdtgfeeeayipkeqkysflqnpqtslcfesesip 60  
 QY 61 TPNMEEETQKSNLELLRLISLLIESWLEPVFLRSMFANNLVYDTSDDYHLKDL EE 120  
 Db 61 tpsnreetqkksnlellrlisllligswlepvlrsvfanslvgyadsnvydlkdl ee 120  
 QY 121 GIOTLMGRLEDGSPR 135  
 Db 121 gigtlmgrledgspr 135

RESULT 13  
 AAR11740  
 ID AAR11740 standard; Protein; 262 AA.  
 XX  
 AC AAR11740;  
 XX  
 DT 25-JUN-1991 (first entry)  
 XX  
 DE Human growth hormone/human nerve growth factor beta fusion protein.  
 XX  
 KW hGH; hNGF; nervous system diseases; dementia.  
 XX  
 OS Homo sapiens.  
 XX  
 PN JP03067598-A.  
 XX  
 PD 22-MAR-1991.  
 XX  
 PF 07-JUL-1989; 89JP-0202835.  
 XX  
 PR 07-AUG-1989; 89JP-0202835.  
 XX  
 PA (TOYJ ) TOSOH CORP.  
 XX  
 DR WPI; 1991-128768/18.  
 DR N-PSDB; AAQ11578.  
 XX  
 PT Purificn. of human neuron growth factor beta-subunit-contg. protein -  
 PT by contacting with gel having cation exchange gp. in presence of  
 PT urea  
 XX  
 PS Disclosure ; fig 1; 7pp; Japanese.  
 XX  
 CC A recombinant human nerve growth factor beta subunit-contg. protein  
 CC can be produced as this fusion protein. It is purified by contacting  
 CC a gel having a cation exchange gp. with the fusion protein, in the  
 CC presence of urea. The purified protein is useful in a medicament

CC for treating disorders of the nervous system, eg dementia.  
 XX  
 SQ Sequence 262 AA;  
 Query Match 81.1%; Score 563; DB 12; Length 262;  
 Best Local Similarity 81.5%; Pred. No. 9.9e-48;  
 Matches 110; Conservative 11; Mismatches 14; Indels 0; Gaps 0;

QY 1 MVOTVPLSLRFDHMLQAHRAHQLAIDTYOEFEETIYIPKQKYSFLHDSQTSFSDSIP 60  
 Db 1 mftptlslrlfdnamlrahrlhqlafdtgfeeeayipkeqkysflqnpqtslcfesesip 60  
 QY 61 TPNMEEETQKSNLELLRLISLLIESWLEPVFLRSMFANNLVYDTSDDYHLKDL EE 120  
 Db 61 tpsnreetqkksnlellrlisllligswlepvlrsvfanslvgyadsnvydlkdl ee 120  
 QY 121 GIOTLMGRLEDGSPR 135  
 Db 121 gigtlmgrledgspr 135

RESULT 14  
 AAR81226  
 ID AAP81226 standard; protein; 138 AA.  
 XX  
 AC AAP81226;  
 XX  
 DT 20-NOV-1990 (first entry)  
 XX  
 DE Sequence of protein with somatomedin-like activity.  
 XX  
 KW Growth hormone.  
 XX  
 OS Synthetic.  
 XX  
 PN JP63167798-A.  
 XX  
 PD 11-JUL-1988.  
 XX  
 PF 29-DEC-1986; 86JP-0310177.  
 XX  
 PR 29-DEC-1986; 86JP-0310177.  
 XX  
 PA (TOYJ ) TOYO SODA MFG KK.  
 XX  
 DR WPI; 1988-232632/33.  
 DR N-PSDB; AAN81605.  
 XX  
 PT Polypeptide with somatomedin-like activity -  
 PT by culturing bacterium transformed by plasmid contg. gene  
 PT segment with specified DNA sequence  
 XX  
 PS Claim 2(1); Page 609; 9pp; Japanese.  
 XX  
 CC The polypeptide (AAP81226) with somatomedin-like activity and the DNA  
 CC (AAN81605) encoding it are claimed. A Met residual gp. may be added to  
 CC the N-terminal. The polypeptide acts on the bone structure of mammals,  
 CC including humans, to promote bone growth. The polypeptide has high  
 CC production rate and is easily extracted from bacterial culture medium  
 CC and refined for use as a bone growth accelerator.  
 XX  
 SQ Sequence 138 AA;  
 Query Match 80.7%; Score 560; DB 9; Length 138;  
 Best Local Similarity 82.6%; Pred. No. 9.1e-48;  
 Matches 109; Conservative 11; Mismatches 12; Indels 0; Gaps 0;

QY 4 TVPLSLRFDHMLQAHRAHQLAIDTYOEFEETIYIPKQKYSFLHDSQTSFSDSIP 63  
 Db 3 tptlslrlfdnamlrahrlhqlafdtgfeeeayipkeqkysflqnpqtslcfesesip 62



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GenCore version 4.5  
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OM protein - protein search, using sw model

Run on: September 25, 2002, 09:58:17 ; Search time 12.99 Seconds  
(without alignments)  
253.846 Million cell updates/sec

Title: US-09-819-094-18

Perfect score: 694

Sequence: 1 MVQIVPLSRFLDHAMLAQHR.....KDLREGIQTLMGRLEDGSPR 135

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 231628 seqs, 24425594 residues

Total number of hits satisfying chosen parameters: 231628

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database :

- Issued\_Patents\_AA.\*  
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2: /cgn2.6/ptodata/2/iaa/5B\_COMB.pep.\*  
3: /cgn2.6/ptodata/2/iaa/6A\_COMB.pep.\*  
4: /cgn2.6/ptodata/2/iaa/6B\_COMB.pep.\*  
5: /cgn2.6/ptodata/2/iaa/PCTUS\_COMB.pep.\*  
6: /cgn2.6/ptodata/2/iaa/backfiles1.pep.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	563	81.1	192	1	US-08-093-383-1
2	560	80.7	191	4	US-09-284-878-5
3	560	80.7	194	2	US-08-383-621-4
4	560	80.7	194	3	US-08-383-621-4
5	560	80.7	193	3	US-08-459-906-4
6	560	80.7	217	3	US-08-589-028-10
7	560	80.7	217	3	US-08-784-582-10
8	560	80.7	217	4	US-08-785-271-10
9	560	80.7	217	4	US-08-759-628-11
10	560	80.7	217	4	US-09-284-878-1
11	560	80.7	274	3	US-08-784-582-71
12	554	79.8	191	4	US-09-465-461-1
13	554	79.8	217	1	US-08-187-756C-4
14	554	79.8	217	1	US-08-469-486-51
15	554	79.8	217	2	US-08-469-658-51
16	554	79.8	217	2	US-08-710-324A-4
17	547	78.8	191	4	US-08-800-215C-18
18	545	78.5	191	4	US-08-800-215C-16
19	545	78.5	191	4	US-08-800-215C-20
20	476.5	68.7	176	3	US-08-791-728-1
21	470.5	67.8	176	3	US-08-791-728-2
22	463	66.7	168	6	5424199-3
23	458.5	66.1	198	1	US-08-187-756C-5
24	458.5	66.1	198	2	US-08-710-324A-5
25	386	55.6	191	1	US-08-468-824-8
26	384	55.3	191	1	US-07-963-331D-4
27	383	55.2	190	1	US-08-388-267C-2

28	383	55.2	190	4	US-09-277-720-2	Sequence 2, Appli
29	383	55.2	191	6	5210180-1	Patent No. 5210180
30	383	55.2	193	1	US-07-621-197C-2	Sequence 2, Appli
31	383	55.2	193	1	US-08-363-982-2	Sequence 2, Appli
32	383	55.2	193	1	US-08-383-621-1	Sequence 1, Appli
33	383	55.2	193	3	US-08-459-906-1	Sequence 1, Appli
34	383	55.2	216	2	US-09-105-651-3	Sequence 3, Appli
35	381	54.9	190	1	US-07-963-331D-3	Sequence 3, Appli
36	381	54.9	191	1	US-07-922-523-1	Sequence 1, Appli
37	381	54.9	191	2	US-08-222-987-1	Sequence 1, Appli
38	375	54.0	191	1	US-08-093-383-3	Sequence 3, Appli
39	375	54.0	193	2	US-08-383-621-3	Sequence 3, Appli
40	375	54.0	193	3	US-08-459-906-3	Sequence 3, Appli
41	375	54.0	216	2	US-09-105-651-1	Sequence 1, Appli
42	372	53.6	191	3	US-08-737-248-22	Sequence 22, Appl
43	370	53.3	191	1	US-07-885-689A-29	Sequence 29, Appl
44	370	53.3	193	2	US-08-383-621-2	Sequence 2, Appli
45	370	53.3	193	3	US-08-459-906-2	Sequence 2, Appli

ALIGNMENTS

RESULT 1  
US-08-093-383-1  
; Sequence 1, Application US/08093383  
; Patent No. 5489529  
; GENERAL INFORMATION:  
; APPLICANT: DeBoer, Herman A.  
; APPLICANT: Heyneker, Herbert L.  
; APPLICANT: Seeburg, Peter H.  
; TITLE OF INVENTION: DNA for Expression of Bovine Growth Hormone  
; NUMBER OF SEQUENCES: 30  
; CORRESPONDENCE ADDRESSES:  
; ADDRESSEE: Genentech, Inc.  
; STREET: 460 Point San Bruno Blvd  
; CITY: South San Francisco  
; STATE: California  
; COUNTRY: USA  
; ZIP: 94080  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: 5.25 inch, 360 Kb floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: patin (Genentech)  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/093,383  
; FILING DATE: 14-JUL-1993  
; CLASSIFICATION: 435  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: 07/619827  
; FILING DATE: 28-NOV-1990  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: 07/198824  
; FILING DATE: 05-APR-1988  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: 05/632361  
; FILING DATE: 19-JUL-1984  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: 06/303687  
; FILING DATE: 18-SEP-1981  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Johnston, Sean A.  
; REGISTRATION NUMBER: F35,910  
; REFERENCE/DOCKET NUMBER: 46C4  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: 415/225-3562  
; TELEFAX: 415/952-9881  
; TELEX: 910/371-7168  
; INFORMATION FOR SEQ ID NO: 1:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 192 amino acids  
; TYPE: amino acid

;  
US-08-093-383-1

;  
US-08-093-383-1

Query Match 81.1%; Score 563; DB 1; Length 192;  
Best Local Similarity 81.5%; Pred. No. 4.5e-57;  
Matches 110; Conservative 11; Mismatches 14; Indels 0; Gaps 0;

Qy 1 MVQTVPLSRFLDHAMLAHQAHRAHQAIDTYQEFETYPKDKYSFLHDSQTSFSDSIP 60  
Db 1 MFPTPLSRFLDHAMLAHQAHRAHQAIDTYQEFETYPKDKYSFLHDSQTSFSDSIP 60

Qy 61 TPSNMEETQOKSNLELLRISLLILLESWLEPVRLSRFANLNVYDTSDDYHLLKDLLE 120  
Db 61 TPSNMEETQOKSNLELLRISLLILLESWLEPVRLSRFANLNVYDTSDDYHLLKDLLE 120

Qy 121 GIQTLMGRLDGSPR 135  
Db 121 GIQTLMGRLDGSPR 135

RESULT 2  
US-09-284-878-5  
; Sequence 5, Application US/09284878  
; Patent No. 6342375  
; GENERAL INFORMATION:  
; APPLICANT: Olazaran, Martha Guerrero  
; APPLICANT: Saldana, Hugo Barrera  
; APPLICANT: Salgado, Jose Maria Viader  
; TITLE OF INVENTION: Genetically Modified Methylotrophic P. pastoris Yeast for the  
; FILE REFERENCE: 1829.0010000  
; CURRENT APPLICATION NUMBER: US/09/284, 878  
; CURRENT FILING DATE: 1999-07-21  
; PRIOR APPLICATION NUMBER: PCT/MX97/00033  
; PRIOR FILING DATE: 1997-10-24  
; NUMBER OF SEQ ID NOS: 9  
; SOFTWARE: PatentIn Ver. 2.1  
; SEQ ID NO 5  
; LENGTH: 191  
; TYPE: PRT  
; ORGANISM: Homo sapiens  
US-09-284-878-5

Query Match 80.7%; Score 560; DB 4; Length 191;  
Best Local Similarity 82.6%; Pred. No. 9.9e-57;  
Matches 109; Conservative 11; Mismatches 12; Indels 0; Gaps 0;

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Db 3 TIPLSRFLDHAMLAHQAHRAHQAIDTYQEFETYPKDKYSFLHDSQTSFSDSIP 62

Qy 64 NMEETQOKSNLELLRISLLILLESWLEPVRLSRFANLNVYDTSDDYHLLKDLLE 123  
Db 63 NMEETQOKSNLELLRISLLILLESWLEPVRLSRFANLNVYDTSDDYHLLKDLLE 122

Qy 124 TLMGRLEDGSPR 135  
Db 123 TLMGRLEDGSPR 134

RESULT 3  
US-08-383-621-4  
; Sequence 4, Application US/08383621  
; Patent No. 5951972  
; GENERAL INFORMATION:  
; APPLICANT: Daley, Michael J.  
; APPLICANT: Buckwalter, Brian L.  
; APPLICANT: Cady, Susan M.  
; APPLICANT: Shieh, Hong-Ming  
; APPLICANT: Bohlen, Peter  
; APPLICANT: Seddon, Andrew P.

;  
US-08-459-906-4  
; Sequence 4, Application US/08459906  
; Patent No. 6010999  
; GENERAL INFORMATION:  
; APPLICANT: Daley, Michael J.  
; APPLICANT: Buckwalter, Brian L.  
; APPLICANT: Cady, Susan M.  
; APPLICANT: Shieh, Hong-Ming  
; APPLICANT: Bohlen, Peter  
; APPLICANT: Seddon, Andrew P.  
; TITLE OF INVENTION: Stabilization of Somatotropins and Other  
; NUMBER OF SEQUENCES: 11  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Dr. Estelle J. Tsevdos  
; STREET: 1937 West Main Street, P.O. Box 60  
; CITY: Stamford  
; STATE: Connecticut  
; COUNTRY: U.S.A.  
; ZIP: 06904-0060  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: PatentIn Release #1.0, Version #1.25  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/383,621  
; FILING DATE: 06-FEB-1995  
; CLASSIFICATION: 514  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 07/766,142  
; FILING DATE: 25-SEP-1991  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Tsevdos, Estelle J.  
; REGISTRATION NUMBER: 31,145  
; REFERENCE/DOCKET NUMBER: 31,278-01  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: 203-321-2756  
; TELEFAX: 203-321-2971  
; TELEX: 203-710-474-4059  
; INFORMATION FOR SEQ ID NO: 4:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 194 amino acids  
; TYPE: amino acid  
; TOPOLOGY: linear  
; MOLECULE TYPE: protein  
US-08-383-621-4

Query Match 80.7%; Score 560; DB 2; Length 194;  
Best Local Similarity 82.6%; Pred. No. 1e-56;  
Matches 109; Conservative 11; Mismatches 12; Indels 0; Gaps 0;

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Db 6 TIPLSRFLDHAMLAHQAHRAHQAIDTYQEFETYPKDKYSFLHDSQTSFSDSIP 65

Qy 64 NMEETQOKSNLELLRISLLILLESWLEPVRLSRFANLNVYDTSDDYHLLKDLLE 123  
Db 66 NMEETQOKSNLELLRISLLILLESWLEPVRLSRFANLNVYDTSDDYHLLKDLLE 125

Qy 124 TLMGRLEDGSPR 135  
Db 126 TLMGRLEDGSPR 137

RESULT 4  
US-08-459-906-4  
; Sequence 4, Application US/08459906  
; Patent No. 6010999  
; GENERAL INFORMATION:  
; APPLICANT: Daley, Michael J.  
; APPLICANT: Buckwalter, Brian L.  
; APPLICANT: Cady, Susan M.  
; APPLICANT: Shieh, Hong-Ming  
; APPLICANT: Bohlen, Peter  
; APPLICANT: Seddon, Andrew P.  
; TITLE OF INVENTION: Stabilization of Somatotropins and Other  
; NUMBER OF SEQUENCES: 11  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: American Cyanamid Company  
; STREET: One Cyanamid Plaza



; CITY: Wayne  
; STATE: New Jersey  
; COUNTRY: U.S.A.  
; ZIP: 07470-8426  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: PatentIn Release #1.0, Version #1.25  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/459,906  
; FILING DATE: 02-JUN-1995  
; CLASSIFICATION: 514  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Webster, Darryl L.  
; REGISTRATION NUMBER: 34,276  
; REFERENCE/DOCKET NUMBER: 31,278-03  
; TELEPHONE: 201-831-3247  
; TELEFAX: 201-831-3305  
; INFORMATION FOR SEQ ID NO: 4:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 194 amino acids  
; TYPE: amino acid  
; TOPOLOGY: linear  
; MOLECULE TYPE: protein  
; US-08-459-906-4

Query Match 80.7%; Score 560; DB 3; Length 194;  
Best Local Similarity 82.6%; Pred. No. 1e-56;  
Matches 109; Conservative 11; Mismatches 12; Indels 0; Gaps 0;

Qy 4 TVPLSLRFDHMLQAHRAHQLAIDTYQEFETIYIPKDKYSLHDSQTSFSDSIPTPS 63  
|:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||  
Db 6 TIPLSLFDNMLRAHRLHQLAFDTYQEFETIYIPKDKYSLHDSQTSFSDSIPTPS 65

Qy 64 NMEETQKSNLELLRLISLLIESWLEPVRFLSRMFANNLVYDTSDDYHLKDLREGIQ 123  
|:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||  
Db 66 NREETQKSNLELLRLISLLIESWLEPVRFLSRMFANNLVYDTSDDYHLKDLREGIQ 125

Qy 124 TLMGRLEDGSPR 135  
|:|||||:|||||  
Db 126 TLMGRLEDGSPR 137

RESULT 5  
US-08-589-028-10  
; Sequence 10, Application US/08589028  
; Patent No. 6087129  
; GENERAL INFORMATION:  
; APPLICANT: Newgard, Christopher B.  
; APPLICANT: Halban, Philippe A.  
; APPLICANT: No. 6087129mington, Karl D.  
; APPLICANT: Clark, Samuel A.  
; APPLICANT: Thigpen, Anice E.  
; APPLICANT: Quade, Christian  
; APPLICANT: Kruse, Fred  
; TITLE OF INVENTION: Recombinant Expression of Proteins From  
; NUMBER OF SEQUENCES: 50  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Arnold, White & Durkee  
; STREET: P. O. Box 4433  
; CITY: Houston  
; STATE: TX  
; COUNTRY: USA  
; ZIP: 77210-4433  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: PatentIn Release #1.0, Version #1.30

; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/589,028  
; FILING DATE: Concurrently Herewith  
; CLASSIFICATION: 435  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Highlander, Steven L.  
; REGISTRATION NUMBER: 47,642  
; REFERENCE/DOCKET NUMBER: UTSD:426\HVL  
; TELEPHONE: (512) 418-3000  
; TELEFAX: (512) 474-7577  
; INFORMATION FOR SEQ ID NO: 10:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 217 amino acids  
; TYPE: amino acid  
; STRANDEDNESS:  
; TOPOLOGY: linear  
; US-08-589-028-10

Query Match 80.7%; Score 560; DB 3; Length 217;  
Best Local Similarity 82.6%; Pred. No. 1.2e-56;  
Matches 109; Conservative 11; Mismatches 12; Indels 0; Gaps 0;

Qy 4 TVPLSLRFDHMLQAHRAHQLAIDTYQEFETIYIPKDKYSLHDSQTSFSDSIPTPS 63  
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Db 29 TIPLSLFDNMLRAHRLHQLAFDTYQEFETIYIPKDKYSLHDSQTSFSDSIPTPS 88

Qy 64 NMEETQKSNLELLRLISLLIESWLEPVRFLSRMFANNLVYDTSDDYHLKDLREGIQ 123  
|:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||  
Db 89 NREETQKSNLELLRLISLLIESWLEPVRFLSRMFANNLVYDTSDDYHLKDLREGIQ 148

Qy 124 TLMGRLEDGSPR 135  
|:|||||:|||||  
Db 149 TLMGRLEDGSPR 160

RESULT 6  
US-08-784-582-10  
; Sequence 10, Application US/08784582  
; Patent No. 6110707  
; GENERAL INFORMATION:  
; APPLICANT: Newgard, Christopher B.  
; APPLICANT: Halban, Philippe A.  
; APPLICANT: No. 6110707mington, Karl D.  
; APPLICANT: Clark, Samuel A.  
; APPLICANT: Thigpen, Anice E.  
; APPLICANT: Quade, Christian  
; APPLICANT: Kruse, Fred  
; APPLICANT: McGarry, Dennis  
; TITLE OF INVENTION: RECOMBINANT EXPRESSION OF PROTEINS FROM  
; NUMBER OF SEQUENCES: 79  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Arnold, White & Durkee  
; STREET: P. O. Box 4433  
; CITY: Houston  
; STATE: Texas  
; COUNTRY: USA  
; ZIP: 77210  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: PatentIn Release #1.0, Version #1.30  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/784,582  
; FILING DATE: Concurrently Herewith  
; CLASSIFICATION: 435  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 60/028,427  
; FILING DATE: 15-OCT-1996  
; PRIOR APPLICATION DATA:

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; APPLICATION NUMBER: US 08/589,028
; FILING DATE: 19-JAN-1996
; ATTORNEY/AGENT INFORMATION:
; NAME: Highlander, Steven L.
; REGISTRATION NUMBER: 37,642
; REFERENCE/DOCKET NUMBER: UTSD:514
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 512/418-3000
; TELEFAX: 512/474-7577
; INFORMATION FOR SEQ ID NO: 10:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 217 amino acids
; TYPE: amino acid
; STRANDEDNESS:
; TOPOLOGY: linear
US-08-784-582-10

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[illegible]

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RESULT 7
US-08-785-271-10
; Sequence 10, Application US/08785271
; Patent No. 6194176
; GENERAL INFORMATION:
; APPLICANT: Newgard, Christopher B.
; APPLICANT: Halban, Philippe A.
; APPLICANT: No. 6194176mington, Karl D.
; APPLICANT: Clark, Samuel A.
; APPLICANT: Thigpen, Anice E.
; APPLICANT: Quaade, Christian
; APPLICANT: Kruse, Fred
; TITLE OF INVENTION: RECOMBINANT EXPRESSION OF PROTEINS FROM
; TITLE OF INVENTION: SECRETORY CELL LINES
; NUMBER OF SEQUENCES: 56
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Arnold, White & Durkee
; CITY: Houston
; STATE: Texas
; COUNTRY: USA
; ZIP: 77210
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/785,271
; FILING DATE: Concurrently Herewith
; CLASSIFICATION: 435
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 08/589,028
; FILING DATE: 19-JAN-1996
; ATTORNEY/AGENT INFORMATION:
; NAME: Highlander, Steven L.
; REGISTRATION NUMBER: 37,642
; REFERENCE/DOCKET NUMBER: UTSD:513

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; TELECOMMUNICATION INFORMATION:
;
; TELEPHONE: 512/418-3000
; TELEFAX: 512/474-7577
; INFORMATION FOR SEQ ID NO: 10:
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; SEQUENCE CHARACTERISTICS:
;
; LENGTH: 217 amino acids
;
; TYPE: amino acid
;
; STRANDEDNESS:
;
; TOPOLOGY: linear
;
US-08-785-271-10

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	Query Match	80.7%;	Score	560;	DB	4;	Length	217;
	Best Local Similarity	82.6%;	Pred.	No. 1.2e-56;				
	Matches	109;	Conservative	11;	Mismatches	12;	Indels	0;
	Gaps	0;						
Qy	4	TVPLSRLFDHMLQAHRALHAIDTYOEFETIYTPKOOKYSFLHDQSQTFSFSDSIPTPS	63					
Dd	29	TIPLSRLFDNMLRAHLRHQLAFDTYOFEFAYTPKEQKYSLQNPTSLCFSESIPITS	88					
Qy	64	NMEETOQKSULELRISLLLTESLPEVPRPUSMFANLVYDTSDDYHLLKLEEGIQ	123					
Dd	89	NREETOQKSULELRISLLLIQSWLPVQFLRSVFANSVLVYGASDSNVYDLKKLEEGIQ	148					
Qy	124	TLMGRLDGSPR	135					
Dd	149	TLMGRLDGSPR	160					

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RESULT      8
US-08-759-628-11
: Sequence 11, Application US/08759628
: Patent No. 6225446
: GENERAL INFORMATION:
: APPLICANT: Altmann, Scott W.
: APPLICANT: Rock, Fernando L.
: APPLICANT: Bazan, J. Fernando
: APPLICANT: Kastelein, Robert A.
: TITLE OF INVENTION: MUTATIONAL VARIANTS OF MAMMALIAN PROTEINS
: NUMBER OF SEQUENCES: 11
: CORRESPONDENCE ADDRESS:
: ADDRESSEE: DNAX Research Institute
: STREET: 901 California Avenue
: CITY: Palo Alto
: STATE: California
: COUNTRY: USA
: ZIP: 94304-1104
: COMPUTER READABLE FORM:
: MEDIUM TYPE: Floppy disk
: COMPUTER: IBM PC Compatible
: OPERATING SYSTEM: PC-DOS/MS-DOS
: SOFTWARE: Patentin Release #1.0, Version #1.30
: CURRENT APPLICATION DATA:
: APPLICATION NUMBER: US/08/759,628
: FILING DATE: 05-DEC-1996
: CLASSIFICATION: 435
: PRIOR APPLICATION DATA:
: APPLICATION NUMBER: US 60/008,574
: FILING DATE: 06-DEC-1995
: ATTORNEY/AGENT INFORMATION:
: NAME: Ching, Edwin P.
: REGISTRATION NUMBER: 34,090
: REFERENCE/DOCKET NUMBER: DX05520
: TELECOMMUNICATION INFORMATION:
: TELEPHONE: 415-852-9196
: TELEFAX: 415-496-1200
: INFORMATION FOR SEQ ID NO: 11:
: SEQUENCE CHARACTERISTICS:
: LENGTH: 217 amino acids
: TYPE: amino acid
: STRANDEDNESS: single
: TOPOLOGY: linear
: MOLECULE TYPE: protein

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FEATURE:  
NAME/KEY: Peptide  
LOCATION: 32..53  
FEATURE:  
NAME/KEY: Peptide  
LOCATION: 94..115  
FEATURE:  
NAME/KEY: Peptide  
LOCATION: 133..153  
FEATURE:  
NAME/KEY: Peptide  
LOCATION: 192..210  
OTHER INFORMATION: /note= "The peptides above are  
depicted in Figure 1"  
US-08-759-628-11

Query Match 80.7%; Score 560; DB 4; Length 217;  
Best Local Similarity 82.6%; Pred. No. 1.2e-56;  
Matches 109; Conservative 11; Mismatches 12; Indels 0; Gaps 0;  
QY 4 TVPLSRFDHMLQAHRAHQLAIDTYQEFETVIPKDKYSFLHDSQTSFSDSIPTPS 63  
Db 29 TIPLSRFDNMLRAHRLHQLAFDIYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPTPS 88  
QY 64 NMEETQOKSNLELLRISLLIESWLEPVRLSRMFANNLVYDTSDDYHLLKDLLEGIQ 123  
Db 89 NREETQOKSNLELLRISLLIQSWLEPVQFLRSVFANSILVYGASDSNVYDLLKDLLEGIQ 148  
QY 124 TLMGRLEDGSPR 135  
Db 149 TLMGRLEDGSPR 160

RESULT 9  
US-09-284-878-1  
Sequence 1, Application US/09284878  
Patent No. 6342375  
GENERAL INFORMATION:  
APPLICANT: Olazaran, Martha Guerrero  
APPLICANT: Saldana, Hugo Barrera  
APPLICANT: Salvado, Jose Maria Viader  
TITLE OF INVENTION: Genetically Modified Methylotrophic P. pastoris Yeast for the  
TITLE OF INVENTION: Production and Secretion of the Human Growth Hormone  
FILE REFERENCE: 1829.001000  
CURRENT APPLICATION NUMBER: US/09/284,878  
CURRENT FILING DATE: 1999-07-21  
PRIOR APPLICATION NUMBER: PCT/MX97/00033  
PRIOR FILING DATE: 1997-10-24  
NUMBER OF SEQ ID NOS: 9  
SOFTWARE: PatentIn Ver. 2.1  
SEQ ID NO 1  
LENGTH: 217  
TYPE: PRT  
ORGANISM: Homo sapiens  
US-09-284-878-1

Query Match 80.7%; Score 560; DB 4; Length 217;  
Best Local Similarity 82.6%; Pred. No. 1.2e-56;  
Matches 109; Conservative 11; Mismatches 12; Indels 0; Gaps 0;  
QY 4 TVPLSRFDHMLQAHRAHQLAIDTYQEFETVIPKDKYSFLHDSQTSFSDSIPTPS 63  
Db 29 TIPLSRFDNMLRAHRLHQLAFDIYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPTPS 88  
QY 64 NMEETQOKSNLELLRISLLIESWLEPVRLSRMFANNLVYDTSDDYHLLKDLLEGIQ 123  
Db 89 NREETQOKSNLELLRISLLIQSWLEPVQFLRSVFANSILVYGASDSNVYDLLKDLLEGIQ 148  
QY 124 TLMGRLEDGSPR 135  
Db 149 TLMGRLEDGSPR 160

RESULT 10  
US-08-784-582-71  
Sequence 71, Application US/08784582  
Patent No. 6110707  
GENERAL INFORMATION:  
APPLICANT: Newgard, Christopher B.  
APPLICANT: Halban, Philippe A. Karl D.  
APPLICANT: No. 6110707mington, Karl D.  
APPLICANT: Clark, Samuel A.  
APPLICANT: Thigpen, Anice E.  
APPLICANT: Quade, Christian  
APPLICANT: Kruse, Fred  
APPLICANT: McGarry, Dennis  
TITLE OF INVENTION: RECOMBINANT EXPRESSION OF PROTEINS FROM  
TITLE OF INVENTION: SECRETORY CELL LINES  
NUMBER OF SEQUENCES: 79  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Arnold, White & Durkee  
STREET: P.O. Box 4433  
CITY: Houston  
STATE: Texas  
COUNTRY: USA  
ZIP: 77210  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: PatentIn Release #1.0, Version #1.30  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/784,582  
FILING DATE: Concurrently Herewith  
CLASSIFICATION: 435  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 60/028,427  
FILING DATE: 15-OCT-1996  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 08/589,028  
FILING DATE: 19-JAN-1996  
ATTORNEY/AGENT INFORMATION:  
NAME: Highlander, Steven L.  
REGISTRATION NUMBER: 37,642  
REFERENCE/DOCKET NUMBER: UTSD:514  
TELEPHONE: 512/418-3000  
TELEFAX: 512/474-7577  
INFORMATION FOR SEQ ID NO: 71:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 274 amino acids  
TYPE: amino acid  
STRANDEDNESS:  
TOPOLOGY: linear  
US-08-784-582-71

Query Match 80.7%; Score 560; DB 3; Length 274;  
Best Local Similarity 82.8%; Pred. No. 1.6e-56;  
Matches 109; Conservative 11; Mismatches 12; Indels 0; Gaps 0;  
QY 4 TVPLSRFDHMLQAHRAHQLAIDTYQEFETVIPKDKYSFLHDSQTSFSDSIPTPS 63  
Db 29 TIPLSRFDNMLRAHRLHQLAFDIYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPTPS 88  
QY 64 NMEETQOKSNLELLRISLLIESWLEPVRLSRMFANNLVYDTSDDYHLLKDLLEGIQ 123  
Db 89 NREETQOKSNLELLRISLLIQSWLEPVQFLRSVFANSILVYGASDSNVYDLLKDLLEGIQ 148  
QY 124 TLMGRLEDGSPR 135  
Db 149 TLMGRLEDGSPR 160



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; SEQUENCE CHARACTERISTICS:
; LENGTH: 217 AMINO ACIDS
; TYPE: AMINO ACID
; STRANDEDNESS:
; TOPOLOGY: LINEAR
; MOLECULE TYPE: PROTEIN
US-08-187-756C-4

Query Match          79.8%; Score 554; DB 1; Length 217;
Best Local Similarity 81.8%; Pred. No. 5.8e-56;
Matches 108; Conservative 11; Mismatches 13; Indels 0; Gaps 0;

QY 4 TVPLSLRFDHAMLQAHRAHQLAIDTYQEFETYPKQKYSFLHDSQTSFSDSIPTPS 63
Db 29 TPLSLRFDNASLRAHLRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPTPS 88
QY 64 NMEETQKSNLELRISLILLIESWLEPVRLSRMFANNLVYDTSDDYHLLKDLLEGIQ 123
Db 89 NREETQKSNLELRISLILLIQSWLEPVQLRSVFNLSVYDLSGASDSNVYDLLKDLLEGIQ 148
QY 124 TLMGRLEDGSPR 135
Db 149 TLMGRLEDGSPR 160

RESULT 14
US-08-469-486-51
; Sequence 51, Application US/08469486
; Patent No. 5739281
; GENERAL INFORMATION:
; APPLICANT: Thøgersen, Hans Christian
; APPLICANT: Holtet, Thor Las
; APPLICANT: Etzerodt, Michael
; TITLE OF INVENTION: Improved method for the refolding of
; TITLE OF INVENTION: proteins
; NUMBER OF SEQUENCES: 58
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Fish & Richardson
; STREET: 225 Franklin Street
; CITY: Boston
; STATE: Massachusetts
; COUNTRY: USA
; ZIP: 02110-2804
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/469,486
; FILING DATE:
; CLASSIFICATION: 530
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 08/192,060
; FILING DATE: February 4, 1994
; ATTORNEY/AGENT INFORMATION:
; NAME: Paul T. Clark
; REGISTRATION NUMBER: 30,162
; REFERENCE/DOCKET NUMBER: 06363/002001
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 617 542 5070
; TELEFAX: 617 542 8906
; TELEX: 200154
; INFORMATION FOR SEQ ID NO: 51:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 217 amino acids
; TYPE: amino acid
; STRANDEDNESS:
; TOPOLOGY: linear
; MOLECULE TYPE: protein
US-08-469-486-51
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Query Match          79.8%; Score 554; DB 1; Length 217;
Best Local Similarity 81.8%; Pred. No. 5.8e-56;
Matches 108; Conservative 11; Mismatches 13; Indels 0; Gaps 0;

QY 4 TVPLSLRFDHAMLQAHRAHQLAIDTYQEFETYPKQKYSFLHDSQTSFSDSIPTPS 63
Db 29 TPLSLRFDNASLRAHLRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPTPS 88
QY 64 NMEETQKSNLELRISLILLIESWLEPVRLSRMFANNLVYDTSDDYHLLKDLLEGIQ 123
Db 89 NREETQKSNLELRISLILLIQSWLEPVQLRSVFNLSVYDLSGASDSNVYDLLKDLLEGIQ 148
QY 124 TLMGRLEDGSPR 135
Db 149 TLMGRLEDGSPR 160

RESULT 15
US-08-469-658-51
; Sequence 51, Application US/08469658
; Patent No. 5917018
; GENERAL INFORMATION:
; APPLICANT: Thøgersen, Hans Christian
; APPLICANT: Holtet, Thor Las
; APPLICANT: Etzerodt, Michael
; TITLE OF INVENTION: IMPROVED METHOD FOR THE REFOLDING OF
; TITLE OF INVENTION: PROTEINS
; NUMBER OF SEQUENCES: 58
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Fish & Richardson P.C.
; STREET: 225 Franklin Street
; CITY: Boston
; STATE: Massachusetts
; COUNTRY: USA
; ZIP: 02110-2804
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/469,658
; FILING DATE: June 5, 1995
; CLASSIFICATION: 530
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 08/192,060
; FILING DATE: February 4, 1994
; CLASSIFICATION: 530
; ATTORNEY/AGENT INFORMATION:
; NAME: Paul T. Clark
; REGISTRATION NUMBER: 30,162
; REFERENCE/DOCKET NUMBER: 06363/002002
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 617 542 5070
; TELEFAX: 617 542 8906
; TELEX: 200154
; INFORMATION FOR SEQ ID NO: 51:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 217 amino acids
; TYPE: amino acid
; STRANDEDNESS:
; TOPOLOGY: linear
; MOLECULE TYPE: protein
US-08-469-658-51

Query Match          79.8%; Score 554; DB 2; Length 217;
Best Local Similarity 81.8%; Pred. No. 5.8e-56;
Matches 108; Conservative 11; Mismatches 13; Indels 0; Gaps 0;
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QY 4 TVPLSRLEDHAMLOAHRAHQLAIDTYQEFETYIPKQKYSFLHDSQTSFSFSIPTPS 63  
Db 29 TIPLSRLEFDNASLRAHRLHQLAFDTYQEFEEYIPKEQKYSFLQNPQTSLCFSESIPTPS 88  
QY 64 NMEETQOKSNLELLRISLLLTIESWLEPVRFRLSRMFANNLVYDTSDDYHLLKDLREGIO 123  
Db 89 NREETQOKSNLELLRISLLLIQSNLEVPVQFLRSVFANSLVYGASDSNVYDLLKDLREGIO 148  
QY 124 TLMGRLEDGSPR 135  
Db 149 TLMGRLEDGSPR 160

Search completed: September 25, 2002, 10:00:48  
Job time: 151 sec

GenCore version 4.5  
Copyright (c) 1993 - 2000 Compugen Ltd.

OM protein - protein search, using sw model

Run on: September 25, 2002, 09:58:42 ; Search time 16.28 Seconds  
(without alignments)  
796.810 Million cell updates/sec

Title: US-09-819-094-18  
Perfect score: 634  
Sequence: 1 MVQTVPLSRFLDAMLQAH.....KDLEGIQTLMGRLEDGSPR 135

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 283138 seqs, 96089334 residues

Total number of hits satisfying chosen parameters: 283138

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : PIR\_71:\*  
1: pir1:\*  
2: pir2:\*  
3: pir3:\*  
4: pir4:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match %	Description
1	675	97.3	217 1 LCHUC
2	675	97.3	217 2 E32435
3	644	92.8	215 2 A26449
4	560	80.7	217 1 STHU
5	553	79.7	217 2 I67410
6	536	77.2	212 2 I67408
7	536	77.2	217 2 I53267
8	523	75.4	217 2 I67409
9	504	72.6	217 1 STHUV
10	487	70.2	217 2 I67411
11	469	67.6	199 2 B32435
12	466.5	67.2	256 1 STHUV2
13	389	56.1	216 2 B49159
14	388	55.9	190 1 A61584
15	384	55.3	190 2 PN0140
16	383	55.2	190 2 JK0219
17	383	55.2	216 1 STMS
18	383	55.2	216 1 STPG
19	383	55.2	216 2 I46145
20	383	55.2	216 2 JC4632
21	381	54.9	216 1 STKT
22	381	54.9	216 2 S49483
23	381	54.9	216 2 A37782
24	377	54.3	190 2 JS0429
25	375	54.0	190 1 STHO
26	370	53.3	217 1 STBO
27	369	53.2	216 2 JC1514
28	366	52.7	216 2 A60509
29	361	52.0	217 1 STSH

30	361	52.0	217 1 STGT	somatotropin precu
31	361	52.0	217 2 S32682	somatotropin - dom
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33	347	50.0	191 2 A60625	somatotropin - gre
34	303	43.7	190 2 A56816	somatotropin - bul
35	301	43.4	190 2 S21750	somatotropin - Rus
36	294	42.4	215 2 I51188	somatotropin - bul
37	289	41.6	195 2 I51250	somatotropin - bow
38	279	40.2	215 2 JS0037	somatotropin precu
39	252.5	36.4	183 2 A60623	somatotropin - blu
40	230	33.1	209 2 JT0483	somatotropin I pre
41	215	31.0	139 2 S04353	somatotropin A - A
42	213.5	30.8	163 2 JN0387	somatotropin - sel
43	200	28.8	87 4 I67761	EST/beta-Gal mutan
44	186	26.8	190 2 JE0144	growth hormone - c
45	183	26.4	190 2 JC5682	somatotropin - com

ALIGNMENTS

RESULT 1  
LCHUC  
Choriomamotropin A precursor [validated] - human  
N:Alternate names: chorionic somatomamotropin 1; placental lactogen  
C:Species: Homo sapiens (man)  
C>Date: 23-Oct-1981 #sequence\_revision 23-Oct-1981 #text\_change 08-Dec-2000  
C:Accession: C32435; A94422; I52342; A93833; A93192; A90054; A94427; A61283; I55229;  
R:Chen, E.Y.; Liao, Y.C.; Smith, D.H.; Barrera-Saldana, H.A.; Gelinas, R.E.; Seeburg, Genomics 4, 479-497, 1989  
A:Title: The human growth hormone locus: nucleotide sequence, biology, and evolution.  
A:Reference number: A32435; MUID:89307277  
A:Accession: C32435  
A:Molecule type: DNA  
A:Residues: 1-217 <CHE>  
A:Cross-references: GB:J03071; NID:9183148; PIDN:AAA52551.1; PID:9183151  
R:Goodman, H.M.; DeNoto, F.; Fiddes, J.C.; Halliwell, R.A.; Page, G.S.; Smith, S.; Ti in Mobilization and Reassembly of Genetic Information, Scott, W.A., Werner, R., Josep A:Reference number: A94422  
A:Accession: A94422  
A:Molecule type: mRNA  
A:Residues: 1-217 <GOO>  
R:Tanaka, M.; Masuda, N.; Watahiki, M.; Yamakawa, M.; Shimizu, K.; Nagai, J.; Nakashi Biochem. Int. 16, 287-292, 1988  
A:Title: cDNA cloning of human chorionic somatomamotropin-1 mRNA whose transcription A:Reference number: I52342; MUID:88209096  
A:Accession: I52342  
A:Status: translated from GB/EMBL/DBJ  
A:Molecule type: mRNA  
A:Residues: 1-3 <TAN>  
A:Cross-references: GB:M35419; NID:9506822  
R:Sherwood, L.M.; Birstein, Y.; Schechter, I., Proc. Natl. Acad. Sci. U.S.A. 76, 3819-3823, 1979  
A:Title: Primary structure of the NH-2-terminal extra piece of the precursor to human A:Reference number: A93833; MUID:80034970  
A:Accession: A93833  
A:Molecule type: protein  
A:Residues: 1,3-26 <SHE>  
A:Experimental source: placenta  
R:Shine, J.; Seeburg, P.H.; Martial, J.A.; Baxter, J.D.; Goodman, H.M. Nature 270, 494-499, 1977  
A:Title: Construction and analysis of recombinant DNA for human chorionic somatomam A:Reference number: A93192; MUID:78071761  
A:Accession: A93192  
A:Molecule type: DNA  
A:Residues: 50-217 <SHI>  
A:Experimental source: placenta  
R:Li, C.H.; Dixon, J.S.; Chung, D. Arch. Biochem. Biophys. 155, 95-110, 1973  
A:Title: Amino acid sequence of human chorionic somatomamotropin.  
A:Reference number: A90054; MUID:73201971  
A:Accession: A90054  
A:Molecule type: protein

A:Residues: 27-217 <LIC>  
A:Experimental source: placenta  
R:Niall, H.D.  
in Prolactin and Carcinogenesis, Proc. Fourth Tenovus Workshop Prolactin, Griffiths, K.,  
A:Title: The chemistry of the human lactogenic hormones.  
A:Reference number: A94427  
A:Accession: A94427  
A:Molecule type: protein  
A:Residues: 27-217 <NIA>  
A:Experimental source: placenta  
R:Nic A Bhaird, N.; Tipton, K.F.  
Biochem. Soc. Trans. 19, 205, 1991  
A:Title: Catechol-O-methyltransferase from human placenta: purification and some properties  
A:Reference number: A61283; MUID:91244006  
A:Accession: A61283  
A:Molecule type: protein  
A:Residues: 27-46 <NIC>  
A:Note: Chorionamototropin apparently copurified with placental catechol-O-methyltransferase  
R:Sherwood, L.M.; Handwerger, S.; McLaurin, W.D.; Lanner, M.  
Nature New Biol. 233, 59-61, 1971  
A:Title: Amino-acid sequence of human placental lactogen.  
A:Reference number: A93401; MUID:72016313  
A:Contents: annotation  
R:Sherwood, L.M.; Handwerger, S.; McLaurin, W.D.; Lanner, M.  
Nature New Biol. 235, 64, 1972  
A:Reference number: A93405  
A:Contents: annotation  
R:Schneider, A.B.; Kowalski, K.; Russell, J.; Sherwood, L.M.  
J. Biol. Chem. 254, 3782-3787, 1979  
A:Title: Identification of the interchain disulfide bonds of dimeric human placental lactogen  
A:Reference number: A92251; MUID:79173081  
A:Contents: annotation; dimeric disulfide bonds  
R:Selby, M.J.; Barta, A.; Baxter, J.D.; Bell, G.I.; Eberhardt, N.L.  
J. Biol. Chem. 259, 13131-13136, 1984  
A:Title: Analysis of a major human chorionic somatomammotropin gene. Evidence for two functional alleles  
A:Reference number: I55229; MUID:85030426  
A:Accession: I55229  
A:Status: translated from GB/EMBL/DBJ  
A:Molecule type: DNA  
A:Residues: 1-217 <RES>  
A:Cross-references: GB:K02401; NID:g181120; PIDN:AAAS2115.1; PID:g181121  
R:Seeburg, P.H.; Shine, J.; Martial, J.A.; Ullrich, A.; Goodman, H.  
Trans. Assoc. Am. Physicians 90, 109-116, 1977  
A:Title: Nucleotide sequence of a human gene coding for a polypeptide hormone.  
A:Reference number: I59658; MUID:78160787  
A:Accession: I59658  
A:Status: translated from GB/EMBL/DBJ  
A:Molecule type: mRNA  
A:Residues: 160-217 <RE2>  
A:Cross-references: GB:M25118; NID:g181124; PIDN:AAA35721.1; PID:g181125  
C:Genetics:  
A:Gene: GDB:CSH1  
A:Cross-references: GDB:l19084; OMIM:150200  
A:Map position: 17q22-17q24  
A:Introns: 4/1; 57/3; 97/3; 152/3  
C:Superfamily: prolactin  
C:Keywords: hormone; placenta  
F:1-26/Domain: signal sequence #status experimental <SIG>  
F:27-217/Product: chorionamototropin A #status experimental <MAT>  
F:79-191/Disulfide bonds: #status experimental  
F:208-215/Disulfide bonds: (in monomeric form) #status experimental  
F:208/Disulfide bonds: interchain (to 215 in dimeric form) #status experimental  
F:215/Disulfide bonds: interchain (to 208 in dimeric form) #status experimental

Query Match 97.3%; Score 675; DB 1; Length 217;  
Best Local Similarity 98.5%; Pred. No. 2.4e-57;  
Matches 132; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 2 VQTVPLSLRFLDHAMLAQRAHQAIDTYQEFETYIPKDKYSFLLHDSQTSFSDSIPT 61  
|||||  
Db 27 VQTVPLSLRFLDHAMLAQRAHQAIDTYQEFETYIPKDKYSFLLHDSQTSFSDSIPT 86  
|||||

QY 62 PSNMEETQOKSNLELRISLLIESWLEPVFLRSFANNLYVDTSDSDYHLLKDLLEG 121  
|||||  
Db 87 PSNMEETQOKSNLELRISLLIESWLEPVFLRSFANNLYVDTSDSDYHLLKDLLEG 146  
|||||  
QY 122 IQTLMGRLEDGSPR 135  
|||||  
Db 147 IQTLMGRLEDGSPR 160  
|||||  
RESULT 2  
E32435  
chorionamototropin B precursor - human  
N:Alternate names: chorionic somatomammotropin 2  
C:Species: Homo sapiens (man)  
C:Date: 29-Dec-1989 #sequence\_revision 29-Dec-1989 #text\_change 16-Jul-1999  
C:Accession: E32435  
R:Chen, E.Y.; Liao, Y.C.; Smith, D.H.; Barrera-Saldana, H.A.; Gelinas, R.E.; Seeburg, G.  
Genomics 4, 479-497, 1989  
A:Title: The human growth hormone locus: nucleotide sequence, biology, and evolution.  
A:Reference number: A32435; MUID:89307277  
A:Accession: E32435  
A:Status: preliminary  
A:Molecule type: DNA  
A:Residues: 1-217 <CHE>  
A:Cross-references: GB:J03071; NID:g183148; PIDN:AAA52553.1; PID:g183153  
C:Genetics:  
A:Gene: GDB:CSH2  
A:Cross-references: GDB:l19813; OMIM:118820  
A:Map position: 17q22-17q24  
C:Superfamily: prolactin

Query Match 97.3%; Score 675; DB 2; Length 217;  
Best Local Similarity 98.5%; Pred. No. 2.4e-57;  
Matches 132; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 2 VQTVPLSLRFLDHAMLAQRAHQAIDTYQEFETYIPKDKYSFLLHDSQTSFSDSIPT 61  
|||||  
Db 27 VQTVPLSLRFLDHAMLAQRAHQAIDTYQEFETYIPKDKYSFLLHDSQTSFSDSIPT 86  
|||||  
QY 62 PSNMEETQOKSNLELRISLLIESWLEPVFLRSFANNLYVDTSDSDYHLLKDLLEG 121  
|||||  
Db 87 PSNMEETQOKSNLELRISLLIESWLEPVFLRSFANNLYVDTSDSDYHLLKDLLEG 146  
|||||  
QY 122 IQTLMGRLEDGSPR 135  
|||||  
Db 147 IQTLMGRLEDGSPR 160  
|||||

RESULT 3  
A26449  
chorionamototropin precursor (allele hCS-3) - human  
C:Species: Homo sapiens (man)  
C:Date: 30-Jun-1988 #sequence\_revision 30-Jun-1988 #text\_change 28-Jul-1995  
C:Accession: A26449  
R:Hirt, H.; Kimmelman, J.; Birnbaum, M.J.; Chen, E.Y.; Seeburg, P.H.; Eberhardt, N.L.;  
DNA 6, 59-70, 1987  
A:Title: The human growth hormone gene locus: structure, evolution, and allelic varia  
A:Reference number: A26449; MUID:87161235  
A:Accession: A26449  
A:Molecule type: DNA  
A:Residues: 1-215 <HIR>  
C:Superfamily: prolactin  
F:1-26/Domain: signal sequence #status predicted <SIG>  
F:27-215/Product: chorionamototropin, hCS-3 allele #status predicted <MAT>

Query Match 92.8%; Score 644; DB 2; Length 215;  
Best Local Similarity 96.3%; Pred. No. 2.2e-54;  
Matches 129; Conservative 1; Mismatches 2; Indels 2; Gaps 2;

QY 2 VQTVPLSLRFLDHAMLAQRAHQAIDTYQEFETYIPKDKYSFLLHDSQTSFSDSIPT 61  
|||||  
Db 27 VQTVPLSLRFLDHAMLAQRAHQAIDTYQEFETYIPKDKYSFLLHDSQTSFSDSIPT 86  
|||||



Db 27 VQTVPLSRLFLHQAHLQALADTYQEFETYPKQKYSFLHDSQTSFCFSDSIPT 86  
QY 62 PSNMEETQOKSNLELRISILLIESWLEPVRFLRSMFANNLVYDTSDDVHLKDLLEG 121  
Db 87 PSNMEETQOKSNLELRISILLIESWLEP-RFLRSMFANNLVYDTSDDVHLKDLLEG 144  
QY 122 IQTLMGRLEDSGSPR 135  
Db 145 IQTLMGRLEDSGSR 158  
RESULT 4  
STHU  
N:Alternate names: growth hormone 1; hGH-N; pituitary somatotropin  
C:Contains: growth hormone 5K peptide; somatotropin 1, long form; somatotropin 1, short  
C:Species: Homo sapiens (man)  
C:Date: 24-Apr-1984 #sequence\_revision 10-Feb-1995 #text\_change 08-Dec-2000  
R:DeNoto, F.M.; Moore, D.D.; Goodman, H.M.  
Nucleic Acids Res. 9, 3719-3730, 1981  
A:Title: Human growth hormone DNA sequence and mRNA structure: possible alternative splicing  
A:Reference number: A93731; MUID:82014939  
A:Accession: A93731  
A:Molecule type: DNA  
A:Residues: 1-217 <DEN>  
A:Cross-references: GB:V00520  
A:Note: The 20K short form somatotropin lacks residues 58-72 (32-46 in the active hormone)  
R:Chen, E.Y.; Liao, Y.C.; Smith, D.H.; Barrera-Saldana, H.A.; Gelinias, R.E.; Seeburg, P.  
Genomics 4, 479-497, 1989  
A:Title: The human growth hormone locus: nucleotide sequence, biology, and evolution.  
A:Reference number: A32435; MUID:89307277  
A:Accession: A32435  
A:Molecule type: DNA  
A:Residues: 1-217 <CHE>  
A:Cross-references: GB:J03071; NID:g183148; PIDN:AAA52549.1; PID:g183149  
R:Roskam, W.; Rougeon, F.  
Nucleic Acids Res. 7, 305-320, 1979  
A:Title: Molecular cloning and nucleotide sequence of the human growth hormone structure  
A:Reference number: A93694; MUID:80034477  
A:Accession: A93694  
A:Molecule type: mRNA  
A:Residues: 1-217 <ROS>  
A:Cross-references: GB:V00519  
A:Note: 35-Pro was also found  
R:Marital, J.A.; Halliwell, R.A.; Baxter, J.D.; Goodman, H.M.  
Science 205, 602-607, 1979  
A:Title: Human growth hormone: complementary DNA cloning and expression in bacteria.  
A:Reference number: A94247; MUID:75203293  
A:Accession: A94247  
A:Molecule type: mRNA  
A:Residues: 1-217 <MAR>  
R:Li, C.H.; Dixon, J.S.; Liu, W.K.  
Arch. Biochem. Biophys. 133, 70-91, 1969  
A:Title: Human pituitary growth hormone. XIX. The primary structure of the hormone.  
A:Reference number: A90048; MUID:69289202  
A:Contents: annotation  
R:Li, C.H.; Dixon, J.S.  
Arch. Biochem. Biophys. 146, 233-236, 1971  
A:Title: Human pituitary growth hormone. XXXII. The primary structure of the hormone: re  
A:Reference number: A90051; MUID:72143935  
A:Accession: A90051  
A:Molecule type: protein  
A:Residues: 27-94; 96-217 <LIC>  
R:Niall, H.D.  
Nature New Biol. 230, 90-91, 1971  
A:Title: Revised primary structure for human growth hormone.  
A:Reference number: A93397; MUID:71139765  
A:Accession: A93397  
A:Molecule type: protein  
A:Residues: 27-51 <NIA>  
R:Niall, H.D.; Hogan, M.L.; Sauer, R.; Rosenblum, I.Y.; Greenwood, F.C.  
Proc. Natl. Acad. Sci. U.S.A. 68, 866-869, 1971  
A:Title: Sequences of pituitary and placental lactogenic and growth hormones: evolution  
A:Reference number: A93778; MUID:71153968  
A:Accession: A93778  
A:Molecule type: protein  
A:Residues: 119-120;157-159 <NI2>  
R:Niall, H.D.  
In Prolactin and Carcinogenesis, Proc. Fourth Tenovus Workshop Prolactin, Griffiths,  
A:Title: The chemistry of the human lactogenic hormones.  
A:Reference number: A94427  
A:Contents: annotation; somatotropin revision  
R:Bewley, T.A.; Dixon, J.S.; Li, C.H.  
Int. J. Pept. Protein Res. 4, 281-287, 1972  
A:Title: Sequence comparison of human pituitary growth hormone, human chorionic somat  
A:Reference number: A91764; MUID:73092028  
A:Accession: A91764  
A:Molecule type: protein  
A:Residues: 27-217 <BEW>  
R:Lewis, U.J.; Bonewald, L.F.; Lewis, L.J.  
Biochem. Biophys. Res. Commun. 92, 511-516, 1980  
A:Title: The 20,000-dalton variant of human growth hormone: location of the amino aci  
A:Reference number: A90217; MUID:80130196  
A:Contents: somatotropin, 20K short variant  
A:Accession: A90217  
A:Molecule type: protein  
A:Residues: 46-57;73-80 <LEW>  
R:Chapman, G.E.; Rogers, K.M.; Brittain, T.; Bradshaw, R.A.; Bates, O.J.; Turner, C.;  
J. Biol. Chem. 256, 2395-2401, 1981  
A:Title: The 20,000 molecular weight variant of human growth hormone. Preparation and  
A:Reference number: A92311; MUID:8117361  
A:Contents: somatotropin, 20K short variant  
A:Accession: A92311  
A:Molecule type: protein  
A:Residues: 27-57;73-79 <CHA>  
R:Singh, R.N.P.; Seavey, B.K.; Lewis, L.J.; Lewis, U.J.  
J. Protein Chem. 2, 425-436, 1983  
A:Title: Human growth hormone peptide 1-43: isolation from pituitary glands.  
A:Reference number: A61466  
A:Accession: A61466  
A:Molecule type: protein  
A:Residues: 27-69 <SIN>  
A:Note: growth hormone 5K peptide has insulin potentiating activity; its physiological  
R:Robson, V.M.J.; Rae, I.D.; NG, F.  
Biol. Chem. Hoppe-Seyler 371, 423-431, 1990  
A:Title: Identification of the aspartimide structure in a previously-reported peptide  
A:Reference number: S09685; MUID:90334745  
A:Accession: S09685  
A:Molecule type: protein  
A:Residues: 27-34,'L',36-47 <ROB>  
R:de Vos, A.M.; Ultsch, M.; Kossiakoff, A.A.  
Science 255, 306-312, 1992  
A:Title: Human growth hormone and extracellular domain of its receptor: crystal struc  
A:Reference number: A41728; MUID:92196577  
A:Contents: annotation; X-ray crystallography, 2.8 angstroms  
A:Note: the structure of the complex with growth hormone receptor is described  
R:Gray, G.L.; Balbridge, J.S.; McKeown, K.S.; Heyneker, H.L.; Chang, C.N.  
Gene 39, 247-254, 1985  
A:Title: Periplasmic production of correctly processed human growth hormone in Escher  
A:Reference number: I41126; MUID:86137393  
A:Accession: I41126  
A:Status: preliminary; translated from GB/EMBL/DBJ  
A:Molecule type: mRNA  
A:Residues: 1-26 <RES>  
A:Cross-references: GB:M14398; NID:g183158; PIDN:AAA52554.1; PID:g183159  
C:Comment: The gene for this hormone is transcribed only in somatotrophic cells of th  
C:Genetics:  
A:Gene: GDB:GH1  
A:Cross-references: GDB:119982; OMIM:139250  
A:Map position: 17q23.1-17q23.3  
A:Introns: 4/1; 57/3; 97/3; 152/3  
C:Superfamily: prolactin  
C:Keywords: alternative splicing; hormone; pituitary  
F;1-26/Domain: signal sequence #status predicted <SIG>

F:27-217/Product: somatotropin 1, long form #status experimental <SOL>  
F:27-69/Product: growth hormone 5K peptide #status experimental <SKP>  
F:27-57,73-217/Product: somatotropin 1, short form #status experimental <SOS>  
F:79-191,208-215/Disulfide bonds: #status experimental

Query Match 80.7%; Score 560; DB 1; Length 217;  
Best Local Similarity 82.6%; Pred. No. 2.9e-46;  
Matches 109; Conservative 11; Mismatches 12; Indels 0; Gaps 0;

Qy 4 TVPLSRFLDHAMLAQAHRAHOLAIDTYQEFETIYPKDQKYSFLHDSQTSFSFSDSIPTPS 63  
I:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||  
Db 29 TIPLSRFLDHAMLAQAHRAHOLAIDTYQEFETIYPKDQKYSFLHDSQTSFSFSDSIPTPS 88  
Qy 64 NMEETQOKSNLELRISLLILIESWLEPVRLSRFANFANLVYDTSDDYHLLKDLREGIQ 123  
I:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||  
Db 89 NREETQOKSNLELRISLLILIESWLEPVRLSRFANFANLVYDTSDDYHLLKDLREGIQ 148

Qy 124 TLMGRLEDGSPR 135  
I:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||  
Db 149 TLMGRLEDGSPR 160

RESULT 5  
I67410  
somatotropin - rhesus macaque  
N:Alternate names: growth hormone  
C:Species: Macaca mulatta (rhesus macaque)  
C:Date: 31-May-1996 #sequence\_revision 31-May-1996 #text\_change 16-Jul-1999  
C:Accession: I67410; A05094  
R:Gollos, T.G.; Durning, M.; Fisher, J.M.; Fowler, P.D.  
Endocrinology 133, 1744-1752, 1993  
A:Title: Cloning of four growth hormone/chorionic somatomotropin-related complementar  
A:Reference number: I53267; MUID:94008724  
A:Accession: I67410  
A:Status: translated from GB/EMBL/DBJ  
A:Molecule type: mRNA  
A:Residues: 1-217 <RES>  
A:Cross-references: GB:L16556; NID:g293114; PIDN:AAA18842.1; PID:g293115  
R:Li, C.H.; Chung, D.; Lahm, H.W.; Stein, S.  
Arch. Biochem. Biophys. 245, 287-291, 1986  
A:Title: The primary structure of monkey pituitary growth hormone.  
A:Reference number: A05094; MUID:86129460  
A:Accession: A05094  
A:Molecule type: protein  
A:Residues: 27-99,'Q',101-178,'D',180-217 <LIC>  
A:Note: the monkey species is not identified in the reference  
R:Raben, M.S.  
Science 125, 883-884, 1957  
A:Title: Preparation of growth hormone from pituitaries of man and monkey.  
A:Reference number: A44774  
A:Contents: annotation; identification of source organism  
C:Superfamily: prolactin

Query Match 79.7%; Score 553; DB 2; Length 217;  
Best Local Similarity 82.6%; Pred. No. 1.2e-45;  
Matches 109; Conservative 10; Mismatches 13; Indels 0; Gaps 0;

Qy 4 TVPLSRFLDHAMLAQAHRAHOLAIDTYQEFETIYPKDQKYSFLHDSQTSFSFSDSIPTPS 63  
I:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||  
Db 29 TIPLSRFLDHAMLAQAHRAHOLAIDTYQEFETIYPKDQKYSFLHDSQTSFSFSDSIPTPS 88  
Qy 64 NMEETQOKSNLELRISLLILIESWLEPVRLSRFANFANLVYDTSDDYHLLKDLREGIQ 123  
I:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||  
Db 89 NREETQOKSNLELRISLLILIESWLEPVRLSRFANFANLVYDTSDDYHLLKDLREGIQ 148

Qy 124 TLMGRLEDGSPR 135  
I:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||  
Db 149 TLMGRLEDGSPR 160

RESULT 6  
I67409  
chorionic somatomotropin-3 - rhesus macaque  
C:Species: Macaca mulatta (rhesus macaque)

I67408  
chorionic somatomotropin-2 - rhesus macaque (fragment)  
C:Species: Macaca mulatta (rhesus macaque)  
C:Date: 31-May-1996 #sequence\_revision 31-May-1996 #text\_change 16-Jul-1999  
C:Accession: I67408  
R:Gollos, T.G.; Durning, M.; Fisher, J.M.; Fowler, P.D.  
Endocrinology 133, 1744-1752, 1993  
A:Title: Cloning of four growth hormone/chorionic somatomotropin-related complemen  
A:Reference number: I53267; MUID:94008724  
A:Accession: I67408  
A:Status: preliminary; translated from GB/EMBL/DBJ  
A:Molecule type: mRNA  
A:Residues: 1-212 <RES>  
A:Cross-references: GB:L16553; NID:g293110; PIDN:AAA18840.1; PID:g293111  
C:Superfamily: prolactin

Query Match 77.2%; Score 536; DB 2; Length 212;  
Best Local Similarity 76.9%; Pred. No. 4.8e-44;  
Matches 103; Conservative 16; Mismatches 15; Indels 0; Gaps 0;

Qy 2 VOTVPLSRFLDHAMLAQAHRAHOLAIDTYQEFETIYPKDQKYSFLHDSQTSFSFSDSIPT 61  
I:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||  
Db 22 VPSVPLSRFLDHAMLAQAHRAHOLAIDTYQEFETIYPKDQKYSFLHDSQTSFSFSDSIPT 81  
Qy 62 PSNMEETQOKSNLELRISLLILIESWLEPVRLSRFANFANLVYDTSDDYHLLKDLREG 121  
I:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||  
Db 82 PSNLEETQOKSNLELRISLLILIESWLEPVRLSRFANFANLVYDTSDDYHLLKDLREG 141  
Qy 122 IOTLMGRLEDGSPR 135  
I:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||  
Db 142 IETLMWRLEDGIPR 155

RESULT 7  
I53267  
chorionic somatomotropin-1 - rhesus macaque  
C:Species: Macaca mulatta (rhesus macaque)  
C:Date: 31-May-1996 #sequence\_revision 31-May-1996 #text\_change 16-Jul-1999  
C:Accession: I53267  
R:Gollos, T.G.; Durning, M.; Fisher, J.M.; Fowler, P.D.  
Endocrinology 133, 1744-1752, 1993  
A:Title: Cloning of four growth hormone/chorionic somatomotropin-related complemen  
A:Reference number: I53267; MUID:94008724  
A:Accession: I53267  
A:Status: preliminary; translated from GB/EMBL/DBJ  
A:Molecule type: mRNA  
A:Residues: 1-217 <RES>  
A:Cross-references: GB:L16552; NID:g293108; PIDN:AAA18839.1; PID:g293109  
C:Superfamily: prolactin

Query Match 77.2%; Score 536; DB 2; Length 217;  
Best Local Similarity 76.9%; Pred. No. 4.9e-44;  
Matches 103; Conservative 16; Mismatches 15; Indels 0; Gaps 0;

Qy 2 VOTVPLSRFLDHAMLAQAHRAHOLAIDTYQEFETIYPKDQKYSFLHDSQTSFSFSDSIPT 61  
I:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||  
Db 27 VPSVPLSRFLDHAMLAQAHRAHOLAIDTYQEFETIYPKDQKYSFLHDSQTSFSFSDSIPT 86  
Qy 62 PSNMEETQOKSNLELRISLLILIESWLEPVRLSRFANFANLVYDTSDDYHLLKDLREG 121  
I:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||  
Db 87 PSNLEETQOKSNLELRISLLILIESWLEPVRLSRFANFANLVYDTSDDYHLLKDLREG 146  
Qy 122 IOTLMGRLEDGSPR 135  
I:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||  
Db 147 IETLMWRLEDGIPR 160

RESULT 8  
I67409  
chorionic somatomotropin-3 - rhesus macaque  
C:Species: Macaca mulatta (rhesus macaque)

C;Date: 31-May-1996 #sequence\_revision 31-May-1996 #text\_change 16-Jul-1999  
C;Accession: I67409  
R;Golos, T.G.; Durning, M.; Fisher, J.M.; Fowler, P.D.  
Endocrinology 133, 1744-1752, 1993  
A;Title: Cloning of four growth hormone/chorionic somatomotropin-related complementat  
A;Reference number: I53267; MUID:94008724  
A;Accession: I67409  
A;Status: preliminary; translated from GB/EMBL/DBJ  
A;Molecule type: mRNA  
A;Residues: 1-217 <RES>  
A;Cross-references: GB:L16554; NID:g293112; PIDN:AAA18841.1; PID:g293113  
C;Superfamily: prolactin

Query Match 75.4%; Score 523; DB 2; Length 217;  
Best Local Similarity 76.1%; Pred. No. 8.7e-43;  
Matches 102; Conservative 16; Mismatches 16; Indels 0; Gaps 0;

QY 2 VQVPLSRFLFDHMLQAHRAHQLAIDTYQEFETYPKDKYSFLHDSQTSFSDSIPT 61  
Db 27 VPSVPLSRFLFDHMLQAHRAHQLAIDTYQEFETYPKDKYSFLHDSQTSFSDSIPT 86  
QY 62 PSNMEETQOKSNLELLRISILLIESWLEPVRFLRSFANNLYVDTSDSDYHLKDLLEG 121  
Db 87 PSNREETQOKSNLELLRISILLIQSWLEPVLQSGVFANNLYVGTSDSDAYDLKLEEG 146  
QY 122 IQTLMGRLEDGSPR 135  
Db 147 IQTLMRRLEDGSPR 160

RESULT 9  
STHUV  
somatotropin 2 precursor - human  
N;Alternate names: growth hormone 2; growth hormone variant; hGH-V; placental somatotrop  
N;Contains: somatotropin 2, long splice form; somatotropin 2, short splice form  
C;Species: Homo sapiens (man)  
C;Date: 17-Dec-1982 #sequence\_revision 10-Feb-1995 #text\_change 21-Jul-2000  
C;Accession: D32435; B28072; A01511; I52104; A60711  
R;Chen, E.Y.; Liao, Y.C.; Smith, D.H.; Barrera-Saldana, H.A.; Gelinas, R.E.; Seeburg, P.  
Genomics 4, 479-497, 1989  
A;Title: The human growth hormone locus: nucleotide sequence, biology, and evolution.  
A;Reference number: A32435; MUID:89307277  
A;Accession: D32435  
A;Molecule type: DNA  
A;Residues: 1-217 <CHE>  
A;Cross-references: GB:J03071; NID:g183148; PIDN:AAA52552.1; PID:g183152  
R;Cooke, N.E.; Ray, J.; Emery, J.G.; Liebhaber, S.A.  
J. Biol. Chem. 263, 9001-9006, 1988  
A;Title: Two distinct species of human growth hormone-variant mRNA in the human placenta  
A;Reference number: A92725; MUID:88243769  
A;Accession: B28072  
A;Molecule type: mRNA  
A;Residues: 1-217 <COO>  
R;Seeburg, P.H.  
DNA 1, 239-249, 1982  
A;Title: The human growth hormone gene family: nucleotide sequences show recent divergen  
A;Reference number: A01511; MUID:83182010  
A;Accession: A01511  
A;Molecule type: DNA  
A;Residues: 1-34, 'p', 36-217 <SEE>  
R;Igout, A.; Scippo, M.L.; Frankenne, F.; Hennen, G.  
Arch. Int. Physiol. Biochim. 96, 63-67, 1988  
A;Title: Cloning and nucleotide sequence of placental hGH-V cDNA.  
A;Reference number: I52104; MUID:89024984  
A;Accession: I52104  
A;Status: preliminary; translated from GB/EMBL/DBJ  
A;Molecule type: mRNA  
A;Residues: 1-217 <IGO>  
A;Cross-references: GB:M38451; NID:g183179; PIDN:AAA35891.1; PID:g183180  
R;Frankenne, F.; Scippo, M.L.; Van Beeumen, J.; Igout, A.; Hennen, G.  
J. Clin. Endocrinol. Metab. 71, 15-18, 1990  
A;Title: Identification of placental human growth hormone as the growth hormone-v gene a

A;Reference number: A60711; MUID:90317018  
A;Accession: A60711  
A;Molecule type: protein  
A;Residues: 27-44;46-57 <FRA>  
A;Experimental source: tissue placenta  
A;Note: partial glycosylation was demonstrated by lectin binding  
C;Comment: This gene is expressed by the placenta.  
C;Genetics:  
A;Gene: GDB:GH2  
A;Cross-references: GDB:119983; OMIM:139240  
A;Map position: 17q22-17q24  
A;Introns: 4/1; 57/3; 97/3; 152/3  
C;Superfamily: prolactin  
C;Keywords: alternative splicing; glycoprotein; hormone; placenta  
F;1-26/Domain: signal sequence #status predicted <SIG>  
F;27-217/Product: somatotropin 2, long splice form #status predicted <SOI>  
F;27-57,73-217/Product: somatotropin 2, short splice form #status predicted <SOS>  
F;79-101,208-215/Disulfide bonds: #status predicted  
F;166/Binding site: carbohydrate (Asn) (covalent) #status predicted

Query Match 72.6%; Score 504; DB 1; Length 217;  
Best Local Similarity 76.5%; Pred. No. 5.8e-41;  
Matches 101; Conservative 13; Mismatches 18; Indels 0; Gaps 0;

QY 4 TVPLSRFLFDHMLQAHRAHQLAIDTYQEFETYPKDKYSFLHDSQTSFSDSIPTPS 63  
Db 29 TIPLSRFLFDHMLQAHRAHQLAIDTYQEFETYPKDKYSFLHDSQTSFSDSIPTPS 88  
QY 64 NMEETQOKSNLELLRISILLIESWLEPVRFLRSFANNLYVDTSDSDYHLKDLLEG 123  
Db 89 NRVTQOKSNLELLRISILLIQSWLEPVLQSGVFANNLYVGTSDSDYHLKDLLEG 148  
QY 124 TLMGRLEDGSPR 135  
Db 149 TLMWRLEDGSPR 160

RESULT 10  
I67411  
somatotropin - rhesus macaque  
N;Alternate names: growth hormone  
C;Species: Macaca mulatta (rhesus macaque)  
C;Date: 31-May-1996 #sequence\_revision 31-May-1996 #text\_change 16-Jul-1999  
C;Accession: I67411  
R;Golos, T.G.; Durning, M.; Fisher, J.M.; Fowler, P.D.  
Endocrinology 133, 1744-1752, 1993  
A;Title: Cloning of four growth hormone/chorionic somatomotropin-related complemen  
A;Reference number: I53267; MUID:94008724  
A;Accession: I67411  
A;Status: preliminary; translated from GB/EMBL/DBJ  
A;Molecule type: mRNA  
A;Residues: 1-217 <RES>  
A;Cross-references: GB:L16555; NID:g293116; PIDN:AAA20180.1; PID:g293117  
C;Superfamily: prolactin

Query Match 70.2%; Score 487; DB 2; Length 217;  
Best Local Similarity 72.7%; Pred. No. 2.5e-39;  
Matches 96; Conservative 15; Mismatches 21; Indels 0; Gaps 0;

QY 4 TVPLSRFLFDHMLQAHRAHQLAIDTYQEFETYPKDKYSFLHDSQTSFSDSIPTPS 63  
Db 29 TIPLSRFLFDHMLQAHRAHQLAIDTYQEFETYPKDKYSFLHDSQTSFSDSIPTPS 88  
QY 64 NMEETQOKSNLELLRISILLIESWLEPVRFLRSFANNLYVDTSDSDYHLKDLLEG 123  
Db 89 NKEETQOKSNLELLRISILLIQSWLEPVLQSGVFANNLYVGTSDSDYHLKDLLEG 148  
QY 124 TLMGRLEDGSPR 135  
Db 149 TLMGRLEDGSPR 160

[illegible]

Qy	125	LMGRLEDGSPR	135
Db	122	LMRELEDGSPR	132

RESULT 15

PN0140

somatotropin - sei whale

N; Alternate names: growth hormone

C/Species: *Balaenoptera borealis* (sei whale)

C;Species: *Burdenoptera borealis* (see where)  
C;Date: 07-May-1993 #sequence\_revision 07-May-1993 #text\_change 07-May-1999

C;Accession: PN0140

R; Yudaev, N.A.; Pankov, Y.A.; Bulatov, A.A.; Osipova, T.A.

Biokhimiia 47, 1059-1069, 1982

A;Title: Amino acid sequence of seiwhale somatotropin.

A; Reference number: PN0140; MUID:83000569

A;Accession: PN0140

A; Molecule type: protein

A; Residues: 1-190 <YUD>

A;Note: article in Russian with English abstract

C; Superfamily: prolactin

C;Keywords: growth factor; hormone

F;52-163,180-188/Disulfide bonds: #status predicted

Query Match 55.3%; Score 384; DB 2; Length 190;  
Best Local Similarity 59.5%; Pred. No. 1.5e-29;  
Matches 78; Conservative 22; Mismatches 29; Indels 2; Gaps 2;


QY 5 VPLSR LFDHAMLQA HRAHQ LAIDTYQ EEEETYP KDQKYSFLHDSQTSFSFSDSIPTPSN 64




[illegible]


4 MPLSSLFANAFLRAQHLHELAAADTYKEEFERAYIPEGQRY-FLQNAQSTGCFSEV IPTPAN 62


[illegible]

QY 65 MEETQKSNLELLRISLLLIESWLEPVFLRSMFANNLVYDTSDDDYHLLKDLLEEGIQT 124








Search completed: September 25, 2002, 10:01:10  
Job time: 148 sec



GenCore version 4.5  
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OM protein - protein search, using sw model

Run on: September 25, 2002, 10:00:52 ; Search time 11.88 Seconds  
(without alignments)  
439.995 Million cell updates/sec

Title: US-09-819-094-18

Perfect score: 694

Sequence: 1 MVQTVPLSRFLHMLQAHK.....KDLGGIQTLMGRLEDGSPR 135

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 105224 seqs, 38719550 residues

Total number of hits satisfying chosen parameters: 105224

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : SwissProt\_40:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match %	Length	DB ID	Description
1	675	97.3	217	1 PLL_HUMAN	P01243 homo sapien
2	560	80.7	217	1 SOMA_HUMAN	P01241 homo sapien
3	553	79.7	217	1 SOMA_MACMU	P33093 macaca mula
4	533	76.8	217	1 SOMA_CALJA	Q9gmb3 callithrix
5	520	74.9	217	1 SOMA_SAIBB	P58343 saimuri bol
6	499	71.9	217	1 SOMV_HUMAN	P01242 homo sapien
7	473	68.2	217	1 SOMV_MACMU	Q07370 macaca mula
8	461.5	66.5	256	1 SOMV_HUMAN	P09587 homo sapien
9	389	56.1	216	1 SOMA_HESAU	P37886 mesocricetu
10	388	55.9	190	1 SOMA_LAMPA	P37885 lama guanac
11	384	55.3	190	1 SOMA_BALBO	P33092 balaeopter
12	383	55.2	190	1 SOMA_TOXAF	P20392 loxodonta a
13	383	55.2	216	1 SOMA_CANFA	P33711 canis famil
14	383	55.2	216	1 SOMA_FELCA	P46404 felis silve
15	383	55.2	216	1 SOMA_MOUSE	P06880 mus musculu
16	383	55.2	216	1 SOMA_PIG	P01248 sus scrofa
17	381	54.9	216	1 SOMA_MUSVI	P19795 mustela vis
18	381	54.9	216	1 SOMA_RABIT	P46407 oryctolagus
19	381	54.9	216	1 SOMA_RAT	P01244 rattus norv
20	377	54.3	190	1 SOMA_VULVU	P10766 vulpes vulp
21	375	54.0	216	1 SOMA_HORSE	P01245 equus cabal
22	374	53.9	217	1 SOMA_NYCPY	Q9gmb2 nycticebus
23	373	53.7	215	1 SOMA_MONDO	Q9g160 monodelphis
24	373	53.7	215	1 SOMA_TRIVU	O62754 trichosurus
25	370	53.3	217	1 SOMA_BOVIN	P01246 bos taurus
26	370	53.3	217	1 SOMA_CEREL	P56437 cervus elap
27	369	53.2	216	1 SOMA_MELGA	P22077 meleagris g
28	368	53.0	217	1 SOMA_BUBBU	O18938 bubalus bub
29	368	53.0	217	1 SOMA_GALSE	Q9gkal galago sene
30	366	52.7	216	1 SOMA_CHICK	P08998 gallus gall
31	361	52.0	217	1 SOMA_SHEEP	P01247 ovis aries
32	354	51.0	217	1 SOMA_STRCA	Q9pww3 struthio ca
33	350.5	50.5	216	1 SOMA_ANAPL	P11228 anas platyr

34	347	50.0	191	1 SOMA_CHEMY	P34005 chelonia my
35	344	49.6	190	1 SOMA_CRONO	P55755 crocodylus
36	307	44.2	211	1 SOMA_LEPOS	P79885 lepisosteus
37	306.5	44.2	214	1 SOMA_XENLA	P12855 xenopus lae
38	301	43.4	190	1 SOMI_ACIGU	P26773 acipenser g
39	301	43.4	190	1 SOMI_ACIGU	P26774 acipenser g
40	294	42.4	215	1 SOMA_RANCA	P10813 rana catesb
41	272.5	39.3	213	1 SOMA_BUFMA	O73849 bufo marinu
42	263.5	38.0	208	1 SOMA_XENLA	P13856 xenopus lae
43	252.5	36.4	183	1 SOMA_PRIGL	P34006 prionace gl
44	249.5	36.0	206	1 SOMA_PROAN	O73848 protopterus
45	233	33.6	209	1 SOMA_ANGJA	P08899 anguilla ja

ALIGNMENTS

RESULT 1	PLL_HUMAN	STANDARD;	PRT;	217 AA.
ID	PLL_HUMAN			
AC	P01243;			
DT	21-JUL-1986 (Rel. 01, Created)			
DT	01-APR-1988 (Rel. 07, Last sequence update)			
DT	16-OCT-2001 (Rel. 40, Last annotation update)			
DE	Lactogen precursor (Chorionmammotropin) (Chorionic somatomammotropin).			
GN	CSH1 AND CSH3.			
OS	Homo sapiens (Human).			
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;			
OC	Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.			
OX	NCBI_TaxID=9606;			
RN	[1]			
RP	SEQUENCE FROM N.A. (GENE CSH1).			
RX	MEDLINE=85030426; PubMed=6208192;			
RA	Selby M.J., Barta A., Baxter J.D., Bell G.I., Eberhardt N.L.;			
RT	"Analysis of a major human chorionic somatomammotropin gene. Evidence for two functional promoter elements.";			
RL	J. Biol. Chem. 259:13131-13138(1984).			
RN	[2]			
RP	SEQUENCE FROM N.A. (GENE CSH3).			
RX	MEDLINE=87161235; PubMed=3030680;			
RA	Hirt H., Kimmelman J., Birnbaum M.J., Chen E.Y., Seeburg P.H.,			
RT	Eberhardt N.L., Barta A.;			
RT	"The human growth hormone gene locus: structure, evolution, and allelic variations.";			
RL	DNA 6:59-70(1987).			
RN	[3]			
RP	SEQUENCE FROM N.A.			
RX	MEDLINE=83160916; PubMed=6300056;			
RA	Barrera-Saldana H.A., Seeburg P.H., Saunders G.F.;			
RT	"Two structurally different genes produce the same secreted human placental lactogen hormone.";			
RL	J. Biol. Chem. 258:3787-3793(1983).			
RN	[4]			
RP	SEQUENCE FROM N.A. (GENES CSH1 AND CSH3).			
RX	MEDLINE=89307277; PubMed=2744760;			
RA	Chen E.Y., Liao Y.C., Smith D.H., Barrera-Saldana H.A., Gellinas R.E.,			
RT	Seeburg P.H.;			
RT	"The human growth hormone locus: nucleotide sequence, biology, and evolution.";			
RL	Genomics 4:479-497(1989).			
RN	[5]			
RP	SEQUENCE			
RX	MEDLINE=83182010; PubMed=7169009;			
RA	Seeburg P.H.;			
RT	"The human growth hormone gene family: nucleotide sequences show recent divergence and predict a new polypeptide hormone.";			
RL	DNA 1:239-249(1982).			
RN	[6]			
RP	SEQUENCE OF 50-217 FROM N.A.			
RX	MEDLINE=78071761; PubMed=593368;			
RA	Shine J., Seeburg P.H., Martial J.A., Baxter J.D., Goodman H.M.;			
RT	"Construction and analysis of recombinant DNA for human chorionic somatomammotropin.";			

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RL Nature 270:494-499(1977).
RN [7]
RP SEQUENCE OF 27-217.
RX MEDLINE=73201971; PubMed=4712450;
RA Li C.H., Dixon J.S., Chung D.;
RT "Amino acid sequence of human chorionic somatomammotropin.";
RL Arch. Biochem. Biophys. 155:95-110(1973).
RN [8]
RP SEQUENCE OF 27-117.
RX MEDLINE=72016313; PubMed=5286363;
RA Sherwood L.M., Handwerger S., McLaurin W.D., Lanner M.;
RT "Amino acid sequence of human placental lactogen.";
RN [9]
RP Nature New Biol. 233:59-61(1971).
RN ERRATUM.
RA Sherwood L.M., Handwerger S., McLaurin W.D., Lanner M.;
RN [10]
RP Nature New Biol. 235:64-64(1972).
RN [10]
RP INTERCHAIN DISULFIDE BONDS.
RX MEDLINE=79173081; PubMed=438159;
RA Schneider A.B., Kowalski K., Russell J., Sherwood L.M.;
RT "Identification of the interchain disulfide bonds of dimeric human placental lactogen.";
RL J. Biol. Chem. 254:3782-3787(1979).
CC -1- FUNCTION: SIMILAR TO THAT OF SOMATOTROPIN.
CC -1- SUBCELLULAR LOCATION: Secreted.
CC -1- MISCELLANEOUS: THE SEQUENCE OF CSH-1 IS SHOWN.
CC -1- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.
CC -----
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CC -----
DR EMBL: V00573; CAA23836.1; -
DR EMBL: J00289; AAA98747.1; -
DR EMBL: K02401; AAA52115.1; -
DR EMBL: M15894; AAA52116.1; -
DR EMBL: J03071; AAA52551.1; -
DR EMBL: J00118; AAA98621.1; -
DR PIR: A01512; LCHUC
DR PIR: A26449; A26449.
DR PIR: C32435; C32435.
DR PIR: E32435; E32435.
DR HSSP: P01241; LHW.
DR MIW: 150200; -.
DR InterPro: IPR001400; SOMATOTROPIN.
DR Pfam: PF00103; hormone; 1.
DR PRINTS: PR00836; SOMATOTROPIN.
DR PROSITE: PS00266; SOMATOTROPIN_1; 1.
DR PROSITE: PS00338; SOMATOTROPIN_2; 1.
DR Hormone; Placenta; Multigene family; Signal.
FT SIGNAL 1 26
FT CHAIN 27 217 LACTOGEN.
FT DISULFID 79 191
FT DISULFID 208 215
FT DISULFID 208 208
FT DISULFID 215 215
FT VARIANT 3 3
FT VARIANT 104 105
FT CONFLICT 84 84
FT CONFLICT 95 95 MISSING (IN REF. 8).
FT CONFLICT 116 116 MISSING (IN REF. 8).
FT CONFLICT 134 136 SDD -> BBS (IN REF. 8).
SQ SEQUENCE 217 AA; 23020 MW; 23580DC7A713F431 CRC64;
Query Match 97.3%; Score 675; DB 1; Length 217;
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Best Local Similarity 98.5%; Pred. NO. 1.3e-59;
Matches 132; Conservative 0; Mismatches 2; Indels 0; Gaps 0;
QY 2 VQTVPLSRLFDHMLQAHQALADTYQFEETYPKDKYSEFLHDSQTSFSDSIPT 61
DB 27 VQTVPLSRLFDHMLQAHQALADTYQFEETYPKDKYSEFLHDSQTSFSDSIPT 86
QY 62 PSNMEETQOKSNLELLRISILLIESWLEPVRLSRNFANLVYDTSDDYHLLKDLERG 121
DB 87 PSNMEETQOKSNLELLRISILLIESWLEPVRLSRNFANLVYDTSDDYHLLKDLERG 146
QY 122 IOTLMGRLEDGSPR 135
DB 147 IOTLMGRLEDGSR 160
RESULT 2
SOMA_HUMAN
ID SOMA_HUMAN STANDARD; PRT; 217 AA.
AC P01241;
DT 21-JUL-1986 (Rel. 01, Created)
DT 01-MAR-1992 (Rel. 21, Last sequence update)
DT 16-OCT-2001 (Rel. 40, Last annotation update)
DE Somatotropin precursor (Growth hormone).
GN GH1.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX NCBI_TaxID=9606;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=82014939; PubMed=6269091;
RA Denoto F.M., Moore D.D., Goodman H.M.;
RT "Human growth hormone DNA sequence and mRNA structure: possible
RT alternative splicing.";
RL Nucleic Acids Res. 9:3719-3730(1981).
RN [2]
RP SEQUENCE FROM N.A.
RX MEDLINE=80034477; PubMed=386281;
RA Roskam W., Rougeon F.;
RT "Molecular cloning and nucleotide sequence of the human growth
RT hormone structural gene.";
RL Nucleic Acids Res. 7:305-320(1979).
RN [3]
RP SEQUENCE FROM N.A.
RX MEDLINE=79203293; PubMed=377496;
RA Martial J.A., Hallewell R.A., Baxter J.D., Goodman H.M.;
RT "Human growth hormone: complementary DNA cloning and expression in
RT bacteria.";
RL Science 205:602-607(1979).
RN [4]
RP SEQUENCE FROM N.A.
RX MEDLINE=89307277; PubMed=2744760;
RA Chen E.Y., Liao Y.C., Smith D.H., Barrera-Saldana H.A.,
RA Gelinas R.E., Seeburg P.H.;
RT "The human growth hormone locus: nucleotide sequence, biology, and
RT evolution.";
RL Genomics 4:479-497(1989).
RN [5]
RP SEQUENCE OF 27-217.
RX MEDLINE=69289202; PubMed=5810834;
RA Li C.H., Dixon J.S., Liu W.-K.;
RT "Human pituitary growth hormone. XIX. The primary structure of the
RT hormone.";
RL Arch. Biochem. Biophys. 133:70-91(1969).
RN [6]
RP SEQUENCE OF 27-217, AND REVISIONS.
RX MEDLINE=72143935; PubMed=5144027;
RA Li C.H., Dixon J.S.;
RT "Human pituitary growth hormone. 32. The primary structure of the
RT hormone: revision.";
RL Arch. Biochem. Biophys. 146:233-236(1971).
RN [7]
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RP SEQUENCE OF 27-51 AND 104-120.  
RX MEDLINE=71139765; PubMed=5279046;  
RA Niall H.D.;  
RT "Revised primary structure for human growth hormone.";  
RL Nature New Biol. 230:90-91(1971).  
RN [8]  
RP REVISION.  
RX MEDLINE=73092028; PubMed=4675454;  
RA Bewley T.A., Dixon J.S., Li C.H.;  
RT "Sequence comparison of human pituitary growth hormone, human  
RT chorionic somatomotropin, and ovine pituitary growth and  
RT lactogenic hormones.";  
RL Int. J. Pept. Protein Res. 4:281-287(1972).  
RN [9]  
RP REVISION.  
RA Niall H.D.;  
RT "The chemistry of the human lactogenic hormones.";  
RL (In) Griffiths K. (eds.);  
RL Prolactin and carcinogenesis, Proc. fourth tenovus workshop prolactin,  
RL pp.13-20, Alpha Omega Alpha Press, Cardiff (1972).  
RN [10]  
RP REVISIONS TO 119-120 AND 157-159.  
RX MEDLINE=71153968; PubMed=5279528;  
RA Niall H.D., Hogan M.L., Sauer R., Rosenblum I.Y., Greenwood F.C.;  
RT "Sequences of pituitary and placental lactogenic and growth hormones:  
RT evolution from a primordial peptide by gene reduplication.";  
RL Proc. Natl. Acad. Sci. U.S.A. 68:866-869(1971).  
RN [11]  
RP SEQUENCE OF 27-57 AND 73-79.  
RX MEDLINE=81117361; PubMed=7462247;  
RA Chapman G.E., Rogers K.M., Brittain T., Bradshaw R.A., Bates O.J.,  
RA Turner C., Cary F.D., Crane-Robinson C.;  
RT "The 20,000 molecular weight variant of human growth hormone.  
RT Preparation and some physical and chemical properties.";  
RL J. Biol. Chem. 256:2395-2401(1981).  
RN [12]  
RP SEQUENCE OF 46-57 AND 73-80.  
RX MEDLINE=80130196; PubMed=7356479;  
RA Lewis U.J., Bonewald L.F., Lewis L.J.;  
RT "The 20,000-dalton variant of human growth hormone: location of the  
RT amino acid deletions.";  
RL Biochem. Biophys. Res. Commun. 92:511-516(1980).  
RN [13]  
RP 3D-STRUCTURE MODELING.  
RX MEDLINE=88190073; PubMed=3447173;  
RA Cohen F.E., Kuntz I.D.;  
RT "Prediction of the three-dimensional structure of human growth  
RT hormone.";  
RL Proteins 2:162-166(1987).  
RN [14]  
RP X-RAY CRYSTALLOGRAPHY (2.8 ANGSTROMS).  
RX MEDLINE=92196577; PubMed=1549776;  
RA de Vos A.M., Ullsch M., Kossiakoff A.A.;  
RT "Human growth hormone and extracellular domain of its receptor:  
RT crystal structure of the complex.";  
RL Science 255:306-312(1992).  
RN [15]  
RP X-RAY CRYSTALLOGRAPHY (2.9 ANGSTROMS).  
RX MEDLINE=95075462; PubMed=7984244;  
RA Somers W., Ullsch M., de Vos A.M., Kossiakoff A.A.;  
RT "The X-ray structure of a growth hormone-prolactin receptor complex.";  
RL Nature 372:478-481(1994).  
RN [16]  
RP X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS).  
RA Chantalat L., Chirgadze N.Y., Jones N., Korber F., Navaza J.,  
RA Pavlovsk A.G., Wlodawer A.;  
RT "The crystal-structure of wild-type growth-hormone at 2.5-A  
RT resolution.";  
RL Protein Pept. Lett. 2:333-340(1995).  
RN [17]  
RP X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS).  
RX MEDLINE=97113023; PubMed=8943276;  
RA Sundstroem M., Lundqvist T., Roedin J., Giebel L.B., Milligan D.,

Norstedt G.;  
RT "Crystal structure of an antagonist mutant of human growth hormone,  
RL G120R, in complex with its receptor at 2.9-A resolution.";  
RL J. Biol. Chem. 271:32197-32203(1996).  
CC -|- FUNCTION: GROWTH HORMONE PLAYS AN IMPORTANT ROLE IN GROWTH  
CC CONTROL.  
CC -|- SUBCELLULAR LOCATION: Secreted.  
CC -|- ALTERNATIVE PRODUCTS: A 20 kDa SHORT VARIANT WHICH LACKS 58-72 IS  
CC PRODUCED AS THE RESULT OF SPLICING AT THE ALTERNATE JUNCTION  
CC OF THE SECOND INTRON.  
CC -|- DISEASE: DEFECTS IN GH1 ARE A CAUSE OF PITUITARY DWARFISM I AND  
CC IV.  
CC -|- PHARMACEUTICAL: Available under the names Nutropin or Protropin  
CC (Genentech), Norditropin (Novo Nordisk), Genotropin (Pharmacia  
CC Upjohn), Humatrope (Eli Lilly) and Saizen or Serostim (Serono).  
CC Used for the treatment of growth hormone deficiency and for  
CC Turner's syndrome.  
CC -|- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.  
CC  
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CC or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).  
CC -----  
CC EMBL; V00519; CAA23778.1; -;  
CC EMBL; J03071; AAA52549.1; -;  
CC EMBL; M13438; AAA98618.1; -;  
CC EMBL; A12770; CAA01057.1; -;  
CC EMBL; A00469; CAA00065.1; -;  
CC PIR; A01510; STHU.  
CC PIR; A32435; A32435.  
CC PDB; 3HRH; 30-APR-94.  
CC PDB; 1HUN; 31-JAN-94.  
CC PDB; 1HGU; 07-DEC-95.  
CC PDB; 1HWG; 19-NOV-97.  
CC PDB; 1LWH; 19-NOV-97.  
CC PDB; 1AXI; 28-JAN-98.  
CC PDB; 1A22; 29-APR-98.  
CC PDB; 1BP3; 23-SEP-98.  
CC MIM; 139250; -;  
CC MIM; 262400; -;  
CC MIM; 262650; -;  
CC InterPro; IPR001400; SOMATOTROPIN.  
CC Pfam; PF00103; hormone; 1.  
CC PRINTS; PR00836; SOMATOTROPIN.  
CC PROSITE; PS00266; SOMATOTROPIN\_1; 1.  
CC PROSITE; PS00338; SOMATOTROPIN\_2; 1.  
CC Ptiluitary; Hormone; Alternative splicing; Signal; 3D-structure;  
CC Dwarfism; Pharmaceutical; Polymorphism.  
CC SIGNAL 1 26 SOMATOTROPIN.  
CC FT CHAIN 27 217  
CC FT DISULFID 79 191  
CC FT DISULFID 208 215  
CC FT VARSPIC 58 72  
CC FT VARIANT 3 3  
CC VARIANT 105 105  
CC VARIANT 136 136  
CC VARIANT 32 61  
CC HELIX 64 72  
CC TURN 76 77  
CC TURN 80 83  
CC HELIX 90 94  
CC TURN 95 95  
CC TURN 98 110  
CC TURN 111 114  
CC HELIX 115 125

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T -> A (IN DSNP:2001345).  
/FTID=VAR\_011917.  
S -> C (IN DSNP:6174).  
/FTID=VAR\_011918.  
V -> I (IN DSNP:5388).  
/FTID=VAR\_011919.



Qy	64	NMEETQOKSNLELLRLISLLIESGLEVPRLSRFANNLVYDTSDDYHLKDLREGIQ	123
Db	89	SKETQOKSNLELLRLISLLIQSWFEPQVPLRSVFNLSLLYGVSDSYEYKDLREGIQ	148
Qy	124	TLMGRLDGSPR 135	
Db	149	TLMGRLDGSPR 160	
RESULT 5			
ID	SOMA_SAIBB	STANDARD;	PRT; 217 AA.
AC	P58343;		
DT	01-MAR-2002 (Rel. 41, Created)		
DT	01-MAR-2002 (Rel. 41, Last sequence update)		
DT	01-MAR-2002 (Rel. 41, Last annotation update)		
DE	Somatotropin precursor (Growth hormone).		
GN	GHL		
OS	Saimiri boliviensis boliviensis (Bolivian squirrel monkey).		
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;		
OC	Mammalia; Eutheria; Primates; Platyrrhini; Cebidae; Cebinae; Saimiri.		
OC	NCBI_Taxid=39432;		
RN	[1]		
RP	SEQUENCE FROM N.A.		
RP	MEDLINE=21265430; PubMed=11371582;		
RX	Liu J.C., Makova K.D., Adkins R.M., Gibson S., Li W.H.;		
RT	"Episodic evolution of growth hormone in primates and emergence of the		
RT	species specificity of human growth hormone receptor.";		
RL	Mol. Biol. Evol. 18:945-953(2001).		
CC	-1- FUNCTION: GROWTH HORMONE PLAYS AN IMPORTANT ROLE IN GROWTH		
CC	CONTROL.		
CC	-1- SUBCELLULAR LOCATION: Secreted.		
CC	-1- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.		
CC	-----		
CC	This SWISS-PROT entry is copyright. It is produced through a collaboration		
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CC	entities requires a license agreement (see http://www.isb-sib.ch/announce/		
CC	or send an email to license@isb-sib.ch).		
CC	-----		
DR	EMBL: AF339060; AAK62287.1; .		
DR	PROSITE: PS00266; SOMATOTROPIN_1; 1.		
DR	PROSITE: PS00338; SOMATOTROPIN_2; 1.		
KW	Hormone; Pituitary; Signal.		
FT	SIGNAL 1 26		BY SIMILARITY.
FT	CHAIN 27 217		SOMATOTROPIN.
FT	DISULFID 79 191		BY SIMILARITY.
FT	DISULFID 208 215		BY SIMILARITY.
SEQ	SEQUENCE 217 AA; 24864 MW; 9515289992C529F7 CRC64;		
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Matches 100; Conservative 15; Mismatches 17; Indels 0; Gaps 0;			
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Qy	64	NMEETQOKSNLELLRLISLLIESGLEVPRLSRFANNLVYDTSDDYHLKDLREGIQ	123
Db	89	SKETQOKSNLELLRLISLLIQSWFEPQVPLRSVFNLSLLYGVSDSYEYKDLREGIQ	148
Qy	124	TLMGRLDGSPR 135	
Db	149	TLMERLEDGSPR 160	
RESULT 6			
SOMV HUMAN			

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FT DISULFID 79 191 BY SIMILARITY.
FT DISULFID 208 215 BY SIMILARITY.
FT CARBOHYD 166 166 N-LINKED (GLCNAC. . .) (POTENTIAL).
FT CONFLICT 35 35 L -> P (IN REF. 3).
FT CONFLICT 109 109 T -> I (IN REF. 2 AND 4).
SQ SEQUENCE 217 AA; 24987 MW; 40FE8620A5138D1C CRC64;

Query Match 71.9%; Score 499; DB 1; Length 217;
Best Local Similarity 75.8%; Pred. No. 2.9e-42;
Matches 100; Conservative 13; Mismatches 19; Indels 0; Gaps 0;

QY 4 TVPLSRLEFHAMLAQRAHQAIDTYQEFETYPKDKYSFLHDSQTSFSDSIPTPS 63
Db 29 TIPLSRLEFHAMLAQRAHQAIDTYQEFETYPKDKYSFLHDSQTSFSDSIPTPS 88
QY 64 NNEETQKSNLELLRISLLLTSLTQSWLQVQLRSVFNANLVDTSDSDVHLLKDLLEGIQ 123
Db 89 NRVKQKSNLELLRISLLLTSLTQSWLQVQLRSVFNANLVDTSDSDVHLLKDLLEGIQ 148
QY 124 TLMGRLEDGSPR 135
Db 149 TLMWRLEDGSPR 160

RESULT 7
SOMV_MACMU
ID SOMV_MACMU STANDARD; PRT; 217 AA.
AC Q07370; Q28494;
DT 01-NOV-1997 (Rel. 35, Created)
DT 01-NOV-1997 (Rel. 35, Last sequence update)
DT 01-NOV-1997 (Rel. 35, Last annotation update)
DE Growth hormone variant I precursor (GH-V) (Placenta-specific growth hormone).
GN GH2.
OS Macaca mulatta (Rhesus macaque).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Cercopitheidae;
OC Cercopitheidae; Macaca.
OX NCBI_TaxID=9544;
RN [1]
RP SEQUENCE FROM N.A.
RA Golos T.G.;
RL Submitted (JAN-1994) to the EMBL/GenBank/DBJ databases.
RN [2]
RP SEQUENCE FROM N.A.
RC TISSUE=Placenta;
RX MEDLINE=94008724; PubMed=8404617;
RA Golos T.G.; Durning M.; Fisher J.M.; Fowler P.D.;
RT "Cloning of four growth hormone/chorionic somatomotropin-related complementary deoxyribonucleic acids differentially expressed during pregnancy in the rhesus monkey placenta.";
RL Endocrinology 133:1744-1752(1995).
CC -!- SUBCELLULAR LOCATION: Secreted (By similarity).
CC -!- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.
CC -----
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CC -----
DR EMBL; U02293; AAA03391.1; -
DR EMBL; L16555; AAA20180.1; -
DR HSP; P01241; LHCU
DR InterPro; IPR001400; SOMATOTROPIN.
DR Pfam; PF00103; Hormone; 1.
DR PRINTS; PR00836; SOMATOTROPIN.
DR PROSITE; PS00266; SOMATOTROPIN_1; 1.
DR PROSITE; PS00338; SOMATOTROPIN_2; 1.
KW Hormone; Placenta; Signal; Glycoprotein.
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FT SIGNAL 1 26 BY SIMILARITY.
FT CHAIN 27 217 GROWTH HORMONE VARIANT I.
FT DISULFID 79 191 BY SIMILARITY.
FT DISULFID 208 215 BY SIMILARITY.
FT CONFLICT 57 57 L -> F (IN REF. 2).
FT CONFLICT 152 152 E -> G (IN REF. 2).
SQ SEQUENCE 217 AA; 25221 MW; 8DB116CBC24EA090 CRC64;

Query Match 68.2%; Score 473; DB 1; Length 217;
Best Local Similarity 71.2%; Pred. No. 1.1e-39;
Matches 94; Conservative 15; Mismatches 23; Indels 0; Gaps 0;

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Db 29 TIPLSRLEFHAMLAQRAHQAIDTYQEFETYPKDKYSFLHDSQTSFSDSIPTPS 88
QY 64 NNEETQKSNLELLRISLLLTSLTQSWLQVQLRSVFNANLVDTSDSDVHLLKDLLEGIQ 123
Db 89 NKEETQKSNLELLRISLLLTQSWLQVQLRSVFNANLVDTSDSDVHLLKDLLEGIQ 148
QY 124 TLMGRLEDGSPR 135
Db 149 TLMWRLEDGSPR 160

RESULT 8
SOMW_HUMAN
ID SOMW_HUMAN STANDARD; PRT; 256 AA.
AC P09587;
DT 01-MAR-1989 (Rel. 10, Created)
DT 01-MAR-1989 (Rel. 10, Last sequence update)
DT 16-OCT-2001 (Rel. 40, Last annotation update)
DE Growth hormone variant II precursor (GH-V2).
GN GH2.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX NCBI_TaxID=9606;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=89307277; PubMed=2744760;
RA Chen E.Y., Liao Y.C., Smith D.H., Barrera-Saldana H.A.,
RA Gelinas R.E., Seeburg P.H.;
RT "The human growth hormone locus: nucleotide sequence, biology, and evolution.";
RL Genomics 4:479-497(1989).
RN [2]
RP SEQUENCE FROM N.A.
RX MEDLINE=88243769; PubMed=3379057;
RA Cooke N.E., Ray J., Emery J.G., Liebhafner S.A.;
RT "Two distinct species of human growth hormone-variant mRNA in the human placenta predict the expression of novel growth hormone proteins.";
RL J. Biol. Chem. 263:9001-9006(1988).
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- ALTERNATIVE PRODUCTS: TWO GROWTH HORMONE VARIANTS ARE PRODUCED BY ALTERNATIVE SPLICING OF THE SAME GENE.
CC -!- MISCELLANEOUS: THE C-TERMINAL REGION OF THIS PROTEIN IS DIFFERENT FROM THAT OF ALL OTHERS PROTEINS OF THIS FAMILY.
CC -!- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.
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DR EMBL; J03756; AAB59547.1; -
DR PIR; A28072; A28072.
DR HSP; P01241; LHUV.
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FT	DISULFID	206	214	BY SIMILARITY.
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QY	5	VPLSRLEFHAMLQAHRAHQLAIDYIQEFTYIPKDQKYSFLHDSQTSFSDSIPTSPN	64	
Db	30	MPLSSLFANVLRQAHLHQLAADTYKFEERYIPDGQKYS-IQNAQAFCFSEIPAPTG	88	
QY	65	MEETQOKSNLELRISLLILIESWLEPVRFKSMFANNLVDTSDSDYHLLKDLDEGIQT	124	
Db	89	KEEAQKSDMELLRFSLLIQSLWLGVPQVFLSRITFNSLMFGTSDR-VYEKLDLEEGIOA	147	
QY	125	LMGRLEDGSPR	135	
Db	148	LMQLELDGSPR	158	
RESULT 10				
SOMA_LAMPA STANDARD; PRT; 190 AA.				
ID	SOMA_LAMPA	AC	P37885;	
DT	01-OCT-1994 (Rel. 30, Created)			
DT	01-OCT-1994 (Rel. 30, Last sequence update)			
DT	15-DEC-1998 (Rel. 37, Last annotation update)			
DE	Somatotropin (Growth hormone).			
GN	GHI.			
OS	Lama guanicoe pacos (Alpaca).			
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;			
OX	Mammalia; Eutheria; Cetartiodactyla; Tylopoda; Camelidae; Lama.			
OX	NCBI_TaxID=30538;			
RN	[1]			
RP	SEQUENCE.			
RX	MEDLINE=92104767; PubMed=1761365;			
RA	de Jimenez Bonino M.B., de Nue I.A., Ore R., Sanchez D., Ferrara P.,			
RA	Capdevielle J., Cascone O.;			
RT	"Primary structure of alpaca growth hormone."			
RL	Int. J. Pept. Protein Res. 38:193-197(1991).			
CC	-1- FUNCTION: GROWTH HORMONE PLAYS AN IMPORTANT ROLE IN GROWTH			
CC	CONTROL.			
CC	-1- SUBCELLULAR LOCATION: Secreted.			
CC	-1- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.			
DR	P1R; A61584; A61584.			
DR	HSP; P01246; IBST.			
DR	InterPro; IPR001400; SOMATOTROPIN.			
DR	Pfam; PF00103; hormone; 1.			
DR	PRINTS; PR00836; SOMATOTROPIN.			
DR	PROSITE; PS00266; SOMATOTROPIN_1; 1.			
DR	PROSITE; PS00338; SOMATOTROPIN_2; 1.			
KW	Hormone; Pituitary.			
FT	DISULFID	52	163	BY SIMILARITY.
FT	DISULFID	180	188	BY SIMILARITY.
SQ	SEQUENCE	190 AA;	21789 MW;	A7C67266A8B96A10 CRC64;
Query Match 55.9%; Score 388; DB 1; Length 190;				
Best Local Similarity 59.5%; Pred. No. 2.2e-31;				
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Db	4	MPLSSLFANVLRQAHLHQLAADTYKFEERYIPDGQKYS-IQNAQAFCFSEIPAPTG	62	
QY	65	MEETQOKSNLELRISLLILIESWLEPVRFKSMFANNLVDTSDSDYHLLKDLDEGIQT	124	
Db	63	KDEAQKSDVLELRFSLLIQSLWLGVPQVFLSRITFNSLMFGTSDR-VYEKLDLEEGIOA	121	
QY	125	LMGRLEDGSPR	135	





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RN SEQUENCE FROM N.A.
RP MEDLINE=85261358; PubMed=2991252;
RX Linzer D.I.H., Talamantes F.;
RA "Nucleotide sequence of mouse prolactin and growth hormone mRNAs and
RT expression of these mRNAs during pregnancy.";
RL J. Biol. Chem. 260:9574-9579(1985).
RN [2]
RP SEQUENCE FROM N.A.
PC STRAIN=FZTDU; TISSUE=Liver;
RX MEDLINE=96194803; PubMed=8647448;
RA Das P., Meyer L., Seyfert H.-M., Brockmann G., Schwerin M.;
RT "Structure of the growth hormone-encoding gene and its promoter in
RL mice.";
RL Gene 169:209-213(1996).
CC -1- FUNCTION: GROWTH HORMONE PLAYS AN IMPORTANT ROLE IN GROWTH
CC CONTROL.
CC -1- SUBCELLULAR LOCATION: Secreted.
CC -1- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.
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CC -----
DR EMBL: X02891; CAA26650.1; -
DR EMBL: Z46663; CAA86658.1; -
DR PIR: B23911; STMS
DR HSSP: P01246; 1BST.
DR MGD: MGI:95707; GH.
DR InterPro: IPR001400; SOMATOTROPIN.
DR Pfam: PF00103; hormone; 1.
DR PRINTS: PR00836; SOMATOTROPIN.
DR PROSITE: PS00266; SOMATOTROPIN_1; 1.
DR PROSITE: PS00338; SOMATOTROPIN_2; 1.
KW Hormone; Pituitary; Signal.
FT SIGNAL 1 BY SIMILARITY.
FT CHAIN 27 216 SOMATOTROPIN.
FT DISULFID 78 189 BY SIMILARITY.
FT DISULFID 206 214 BY SIMILARITY.
SQ SEQUENCE 216 AA; 24716 MW; 98666A3AE25D65FC CRC64;

Query Match 55.2%; Score 383; DB 1; Length 216;
Best Local Similarity 58.0%; Pred. No. 8.1e-31;
Matches 76; Conservative 24; Mismatches 29; Indels 2; Gaps 2;

QY 5 VPLSLRFLDAMLAQAHRAHQAIDTYQEFETYIPKQKYSLHDSOTSPSPDSIPTPSN 64
DB 30 MPLSLFSNAVLRQAQHLQAADTYKFEERAYIPEGQYS-IONQAQACFSETIPATG 88
QY 65 MEETQKSNLELRISLLIESWLEPVRFLRSMFANNLVYDTSDDYHLLKDLLEGITQ 124
DB 89 KEAQOQTDMELEFRSLLIQSLGVPQFLSRIFTNSLMFGTSDR-VYEKLDLEEGIA 147
QY 125 LMGRLEDGSPR 135
DB 148 LMQELEDGSPR 158
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Job time: 230 sec



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OM protein - protein search, using sw model

Run on: September 25, 2002, 09:59:57 ; Search time 26.92 Seconds  
(without alignments)  
867.545 Million cell updates/sec

Title: US-09-819-094-18  
Perfect score: 694  
Sequence: 1 MVQTVPLSLRFLDHLMLQHR.....KDLREGIOTLMGRLEDGSPR 135

Scoring table:

Gapop 10.0 , Gapext 0.5

Searched: 562222 seqs, 172994929 residues

Total number of hits satisfying chosen parameters: 562222

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database :

- SPTREMBL\_19:\*
- 1: sp\_archaea:\*
  - 2: sp\_bacteria:\*
  - 3: sp\_fungi:\*
  - 4: sp\_human:\*
  - 5: sp\_invertebrate:\*
  - 6: sp\_mammal:\*
  - 7: sp\_mhc:\*
  - 8: sp\_organelle:\*
  - 9: sp\_phage:\*
  - 10: sp\_plant:\*
  - 11: sp\_rodent:\*
  - 12: sp\_virus:\*
  - 13: sp\_vertebrate:\*
  - 14: sp\_unclassified:\*
  - 15: sp\_rvirus:\*
  - 16: sp\_bacteriap:\*
  - 17: sp\_archaeap:\*

pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	675	97.3	217	Q14407	Q14407 homo sapien
2	554	79.8	217	Q16631	Q16631 homo sapien
3	553	79.7	167	P78451	P78451 homo sapien
4	536	77.2	212	Q07368	Q07368 macaca mula
5	536	77.2	217	Q07367	Q07367 macaca mula
6	523	75.4	217	Q07369	Q07369 macaca mula
7	469	67.6	199	Q14406	Q14406 homo sapien
8	466	67.1	245	Q14644	Q14644 homo sapien
9	430.5	62.0	202	Q14643	Q14643 homo sapien
10	404.5	58.3	171	Q3UNL5	Q3UNL5 homo sapien
11	398	57.3	216	Q9JRM4	Q9JRM4 cavia porce
12	388	55.9	190	Q9JRM0	Q9JRM0 cavia porce
13	381	54.9	179	Q9HB21	Q9HB21 homo sapien
14	379	54.6	217	Q28957	Q28957 sus scrofa
15	377	54.3	216	Q9R2C3	Q9R2C3 mus musculus
16	374	53.9	216	Q70615	Q70615 spalax leuc

17	371	53.5	192	6	Q9TU21	Q9tu21 capra hircu
18	370	53.3	178	6	Q95M35	Q95m35 tarsius ban
19	370	53.3	192	6	Q9TQW9	Q9tq99 bos indicus
20	369	53.2	204	6	Q95205	Q95205 ovis aries
21	364	52.4	217	6	Q9BEC0	Q9bec0 tragulus ja
22	364	52.4	217	6	Q9BEB9	Q9beb9 tragulus ja
23	364	52.4	143	6	Q95240	Q95240 canis famil
24	360	51.9	178	6	Q95M36	Q95m36 tarsius syr
25	337	48.6	145	6	Q9BDR4	Q9bdr4 galago cras
26	326.5	47.0	218	13	Q9PU72	Q9pu72 cynops pyr
27	289	41.6	195	13	Q91386	Q91386 amia calva
28	254.5	36.7	110	6	Q9N265	Q9n265 bos taurus
29	199.5	28.7	140	13	Q90WE4	Q90we4 gallus gall
30	183	26.4	187	13	Q98SR8	Q98sr8 megalobrama
31	183	26.4	188	13	Q98TT4	Q98tt4 megalobrama
32	183	26.4	210	13	Q90Z01	Q90z01 mylopharyng
33	182	26.2	188	13	Q90283	Q90283 carassius a
34	182	26.2	210	13	Q91056	Q91056 hypophthalm
35	181.5	26.2	120	6	Q9TSG0	Q9ts90 ovis aries
36	176	25.4	188	13	Q98SR7	Q98sr7 cyprinus ca
37	176	25.4	188	13	Q90W27	Q90w27 carassius a
38	176	25.4	188	13	Q90W26	Q90w26 carassius a
39	171	24.6	211	13	Q9W798	Q9w798 catia catia
40	170	24.5	210	13	Q90WV7	Q90wv7 catia catia
41	169	24.4	210	13	Q90W30	Q90w30 cirrhinus m
42	145	20.9	45	6	Q9TSF9	Q9tsf9 ovis aries
43	141	20.3	210	13	Q91160	Q91160 oncorhynch
44	139	20.0	187	13	Q91449	Q91449 seriola dum
45	132.5	19.1	204	13	Q90Y60	Q90y60 sparus aura

ALIGNMENTS

RESULT 1

ID	Q14407	PRELIMINARY;	PRT;	217 AA.
AC	Q14407;			
DT	01-NOV-1996 (TREMBLrel. 01, Created)			
DT	01-NOV-1996 (TREMBLrel. 01, Last sequence update)			
DT	01-DEC-2001 (TREMBLrel. 19, Last annotation update)			
DE	CHORIONIC SOMATOMAMOTROPIN CS-2.			
OS	Homo sapiens (Human).			
OC	Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;			
OC	Mammalia; Eutheria; Plrimates; Catarrhini; Hominidae; Homo.			
OX	NCBI_TaxID=9606;			
RN	[1]			
RP	SEQUENCE FROM N.A.			
RX	MEDLINE=89307277; PubMed=2744760;			
RA	Chen E.Y., Liao Y.C., Smith D.H., Barrera-Saldana H.A., Gelinas R.E.,			
RA	Seeburg P.H.;			
RT	"The human growth hormone locus: nucleotide sequence, biology, and			
RT	evolution.";			
RL	Genomics 4:479-497(1989).			
RN	[2]			
RP	SEQUENCE FROM N.A.			
RX	MEDLINE=91102558; PubMed=1980158;			
RA	Vnencak-Jones C.L., Phillips J.A. III.;			
RT	"Hot spots for growth hormone gene deletions in homologous regions			
RT	outside of Alu repeats.";			
RL	Science 250:1745-1748(1990).			
DR	EMBL; J03071; AAA52553.1; -.			
DR	HSSP; P01241; 1A22.			
DR	InterPro: IPR001400; SOMATOTROPIN.			
DR	Pfam: PF00103; hormone; 1.			
DR	PRINTS; PR00836; SOMATOTROPIN.			
DR	PROSITE; PS00266; SOMATOTROPIN_1; 1.			
DR	PROSITE; PS00338; SOMATOTROPIN_2; 1.			
SQ	SEQUENCE 217 AA; 24994 MW; 39FAACDDB6B2E951 CRC64;			

Query Match 97.3%; Score 675; DB 4; Length 217;  
Best Local Similarity 98.5%; Pred. No. 1.3e-58;

Matches	132;	Conservative	0;	Mismatches	2;	Indels	0;	Gaps	0;											
Qy	2	VOTVPLSRFLDAMLAQRAHQLAIDTYQEFEEYIPKQDKYSFLHDSQTSFSFSDSIPT	61																	
Db	27	VOTVPLSRFLDAMLAQRAHQLAIDTYQEFEEYIPKQDKYSFLHDSQTSFSFSDSIPT	86																	
Qy	62	PSNMEETQOKSNLELRISLLIESWLEPVRFLESMFANNLVDTSDSDYHLKDLLEG	121																	
Db	87	PSNMEETQOKSNLELRISLLIESWLEPVRFLESMFANNLVDTSDSDYHLKDLLEG	146																	
Qy	122	IOTLMGRLEDGSPR 135																		
Db	147	IOTLMGRLEDGSR 160																		
RESULT 2																				
Q16631																				
ID	Q16631	PRELIMINARY;	PRT;	217	AA.															
AC	Q16631;	Q14405;																		
DT	01-NOV-1996	(TREMBLrel. 01, Created)																		
DT	01-NOV-1996	(TREMBLrel. 01, Last sequence update)																		
DE	01-DEC-2001	(TREMBLrel. 19, Last annotation update)																		
DE	GROWTH HORMONE.																			
OS	Homo sapiens (Human),																			
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;																			
OC	Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.																			
NCBI_TaxID=9606;																				
OX	[1]																			
RN	SEQUENCE FROM N.A.																			
RP	MEDLINE=82014939; PubMed=6269091;																			
RX	DeNoto F.M., Moore D.D., Goodman H.M.;																			
RA	RT "Human growth hormone DNA sequence and mRNA structure: possible																			
RT	alternative splicing."																			
RL	Nucleic Acids Res. 9:3719-3730(1981).																			
RN	[2]																			
RX	SEQUENCE FROM N.A.																			
RX	MEDLINE=840571143; PubMed=6357679;																			
RA	Adelman J.P., Haylick J.S., Vasser M., Seeburg P.H.;																			
RT	"In vitro deletional mutagenesis for bacterial production of the																			
RT	20,000-dalton form of human pituitary growth hormone.;"																			
RL	DNA 2:183-193(1983)																			
DR	EMBL; V00520; CAA23779.1; -.																			
DR	HSSP; P01241; LHCU.																			
DR	InterPro; IPR001400; SOMATOTROPIN.																			
DR	Pfam; PF00103; hormone; 1.																			
DR	PRINTS; PR00836; SOMATOTROPIN.																			
DR	PROSITE; PS00266; SOMATOTROPIN_1; 1.																			
DR	PROSITE; PS00338; SOMATOTROPIN_2; 1.																			
SEQ	SEQUENCE 217 AA; 24803 MW; CCC4D81150D908AC CRC64;																			

DT	01-MAY-1997	(TREMBLrel. 03, Last sequence update)
DE	01-DEC-2001	(TREMBLrel. 19, Last annotation update)
DE	SOMATOMAMOTROPIN	(CHORIONIC SOMATOMAMOTROPIN) (HCS) (FRAGMENT).
OS	Homo sapiens	(Human).
OS	Eukaryota; Metazoa;	Chordata; Craniata; Vertebrata; Euteleostomi;
OC	Mammalia; Eutheria;	Primates; Catarrhini; Hominidae; Homo.
OC	NCBI_taxID=9606;	
RN	[1]	
RN	SEQUENCE FROM N.A.	
RP	MEDLINE=78071761;	PubMed=593368;
RP	Shine J., Seeburg P.H., Martial J.A., Baxter J.D., Goodman H.M.;	
RT	"Construction and analysis of recombinant DNA for human chorionic	
RT	somatomamotropin."	
RT	Nature 270:494-499(1977).	
RN	[2]	
RN	SEQUENCE OF 110-167 FROM N.A.	
RP	MEDLINE=78160787;	PubMed=611657;
RP	Seeburg P.H., Shine J., Martial J.A., Ullrich A., Goodman H.M.,	
RA	Baxter J.D.;	
RA	"Nucleotide sequence of a human gene coding for a polypeptide	
RT	hormone."	
RT	Trans. Assoc. Am. Physicians 90:109-116(1977).	
DR	EMBL; V00593; CAA23840.1;	..
DR	EMBL; M25118; AAA35721.1;	..
DR	HSSP; P01243; 1A22.	
DR	InterPro; IPR001400; SOMATOTROPIN.	
DR	Pfam; PF00103; hormone; 1.	
DR	PRINTS; PR00836; SOMATOTROPIN.	
DR	PROSITE; PS00266; SOMATOTROPIN_1; 1.	
DR	PROSITE; PS00338; SOMATOTROPIN_2; 1.	
FW	Chorion.	
KW	NON_TER	1
FT	SEQUENCE	167 AA; 19586 MW; 6EC7829D3938E976 CRC64;
SQ		
Query Match 79.7%; Score 553; DB 4; Length 167;		
Best Local Similarity 98.2%; Pred. No. 8.9e-47;		
Matches 108; Conservative 0; Mismatches 2; Indels 0; Gaps		
QY	26	IDTQVEFEENYIPDKQYSFLHDSTQSFSDSIPTTPSNMEETQOKSNLELRISLLLE 85
DB	1	IDTQVEFEENYIPDKQYSFLHDSTQSFSDSIPTTPSNMEETQOKSNLELRISLLLE 60
QY	86	SWLEPVRFLSMFANNLVYDTSDSDYHLKLDLEEIQTLMGRLDGSPR 135
DB	61	SWLEPVRFLSMFANNLVYDTSDSDYHLKLDLEEIQTLMGRLDGSR 110
RESULT	4	
Q07368		
ID	Q07368	PRELIMINARY; PRT; 212 AA.
AC	Q07368;	
DC	01-NOV-1996	(TREMBLrel. 01, Created)
DT	01-NOV-1996	(TREMBLrel. 01, Last sequence update)
DT	01-DEC-2001	(TREMBLrel. 19, Last annotation update)
DE	SOMATOTROPIN 2	PRECURSOR (GROWTH HORMONE 2) (FRAGMENT).
DE	Macaca mulatta	(Rhesus macaque).
OC	Eukaryota; Metazoa;	Chordata; Craniata; Vertebrata; Euteleostomi;
OC	Mammalia; Eutheria;	Primates; Catarrhini; Cercopitheciidae;
OC	Cercopitheciinae; Macaca.	
ON	NCBI_taxID=9544;	
ON	[1]	
RC	SEQUENCE FROM N.A.	
RC	TISSUE=PLACENTA;	
RC	MEDLINE=94008724;	PubMed=8404617;
RA	Golos T.G., Durning M., Fisher J.M., Fowler P.D.;	
RT	"Cloning of four growth hormone/chorionic somatomamotropin-related	
RT	complementary deoxyribonucleic acids differentially expressed during	
RT	pregnancy in the rhesus monkey placenta."	
RL	Endocrinology 133:1744-1752(1993).	
CC	!- FUNCTION: GROWTH HORMONE PLAYS AN IMPORTANT ROLE IN GROWTH	
CC	CONTROL.	
CC	!- SUBCELLULAR LOCATION: SECRETED.	

CC -1- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.  
DR EMBL; L16553; AAA18840.1; -;  
DR HSSP; P01241; IAXI.  
DR InterPro; IPR001400; SOMATOTROPIN.  
DR Pfam; PF00103; hormone; 1.  
DR PRINTS; PR00836; SOMATOTROPIN.  
DR PROSITE; PS00338; SOMATOTROPIN\_2; UNKNOWN\_1.  
KW Pituitary; Hormone; Signal.  
FT NON\_TER 1  
FT SIGNAL <1 ?  
FT CHAIN ? 212 SOMATOTROPIN 2.  
FT DISULFID 74 186 BY SIMILARITY.  
FT DISULFID 203 210 BY SIMILARITY.  
SQ SEQUENCE 212 AA; 24525 MW; 27BC91106256E6F5 CRC64;

Query Match 77.2%; Score 536; DB 6; Length 212;  
Best Local Similarity 76.9%; Pred. No. 5.5e-45;  
Matches 103; Conservative 16; Mismatches 15; Indels 0; Gaps 0;  
QY 2 VQTVPLSRFLFDHMLQAHRAHOLAIDTYQEFETYPKDKYSLFHDSTSFSDSIPT 61  
DB 22 VPSVPLSRFLFDHMLQAHRLHQLAFDYQEFEEAYIPKEKKHSLMENPQASFCFADSIPT 81  
QY 62 PSNMEETQOKSNLELLRISLLIESWLEPVRFRLSMFANNLVYDTSDDYHLLKDLLEG 121  
DB 82 PSNLEETQOKSNLELLRISLLIQSWLEPVQFLSSVFANNLLHHTSDSDVHLLKDLLEG 141  
QY 122 IOTLMGRLEDGSPR 135  
DB 142 IETLMWRLEDGIPR 155

RESULT 5  
QY 007367 PRELIMINARY; PRT; 217 AA.  
AC 007367;  
DT 01-NOV-1996 (TREMBlrel. 01, Created)  
DT 01-NOV-1996 (TREMBlrel. 01, Last sequence update)  
DT 01-DEC-2001 (TREMBlrel. 19, Last annotation update)  
DE SOMATOTROPIN 1 PRECURSOR (GROWTH HORMONE 1).  
OS Macaca mulatta (Rhesus macaque).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Primates; Catarrhini; Cercopitheidae;  
OC Cercopitheidae; Macaca.  
OX NCBI\_TaxID=9544;  
RN [1]  
RP SEQUENCE FROM N.A.  
RC TISSUE=PLACENTA;  
RX MEDLINE=94008724; PubMed=8404617;  
RA Golos T.G., Durning M., Fisher J.M., Fowler P.D.;  
RT "Cloning of four growth hormone/chorionic somatomotropin-related  
complementary deoxyribonucleic acids differentially expressed during  
pregnancy in the rhesus monkey placenta.";  
RL Endocrinology 133:1744-1752(1993).  
CC -1- FUNCTION: GROWTH HORMONE PLAYS AN IMPORTANT ROLE IN GROWTH  
CONTROL.  
CC -1- SUBCELLULAR LOCATION: SECRETED.  
CC -1- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.  
DR EMBL; L16552; AAA18839.1; -;  
DR HSSP; P01241; IAXI.  
DR InterPro; IPR001400; SOMATOTROPIN.  
DR Pfam; PF00103; hormone; 1.  
DR PRINTS; PR00836; SOMATOTROPIN.  
DR PROSITE; PS00338; SOMATOTROPIN\_2; UNKNOWN\_1.  
KW Pituitary; Hormone; Signal.  
FT SIGNAL 1 ?  
FT CHAIN ? 217 SOMATOTROPIN 1.  
FT DISULFID 79 191 BY SIMILARITY.  
FT DISULFID 208 215 BY SIMILARITY.  
SQ SEQUENCE 217 AA; 24942 MW; FF5AA8915131F2BC CRC64;

Query Match 77.2%; Score 536; DB 6; Length 212;  
Best Local Similarity 76.9%; Pred. No. 5.5e-45;  
Matches 103; Conservative 16; Mismatches 15; Indels 0; Gaps 0;  
QY 2 VQTVPLSRFLFDHMLQAHRAHOLAIDTYQEFETYPKDKYSLFHDSTSFSDSIPT 61  
DB 22 VPSVPLSRFLFDHMLQAHRLHQLAFDYQEFEEAYIPKEKKHSLMENPQASFCFADSIPT 81  
QY 62 PSNMEETQOKSNLELLRISLLIESWLEPVRFRLSMFANNLVYDTSDDYHLLKDLLEG 121  
DB 82 PSNLEETQOKSNLELLRISLLIQSWLEPVQFLSSVFANNLLHHTSDSDVHLLKDLLEG 141  
QY 122 IOTLMGRLEDGSPR 135  
DB 142 IETLMWRLEDGIPR 155

Query Match 77.2%; Score 536; DB 6; Length 217;  
Best Local Similarity 76.9%; Pred. No. 5.7e-45;  
Matches 103; Conservative 16; Mismatches 15; Indels 0; Gaps 0;  
QY 2 VQTVPLSRFLFDHMLQAHRAHOLAIDTYQEFETYPKDKYSLFHDSTSFSDSIPT 61  
DB 27 VPSVPLSRFLFDHMLQAHRLHQLAFDYQEFEEAYIPKEKKHSLMENPQASFCFADSIPT 86  
QY 62 PSNMEETQOKSNLELLRISLLIESWLEPVRFRLSMFANNLVYDTSDDYHLLKDLLEG 121  
DB 87 PSNLEETQOKSNLELLRISLLIQSWLEPVQFLSSVFANNLLHHTSDSDVHLLKDLLEG 146  
QY 122 IOTLMGRLEDGSPR 135  
DB 147 IETLMWRLEDGIPR 160

RESULT 6  
QY 007369 PRELIMINARY; PRT; 217 AA.  
AC 007369;  
DT 01-NOV-1996 (TREMBlrel. 01, Created)  
DT 01-NOV-1996 (TREMBlrel. 01, Last sequence update)  
DT 01-DEC-2001 (TREMBlrel. 19, Last annotation update)  
DE SOMATOTROPIN 3 PRECURSOR (GROWTH HORMONE 3).  
OS Macaca mulatta (Rhesus macaque).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Primates; Catarrhini; Cercopitheidae;  
OC Cercopitheidae; Macaca.  
OX NCBI\_TaxID=9544;  
RN [1]  
RP SEQUENCE FROM N.A.  
RC TISSUE=PLACENTA;  
RX MEDLINE=94008724; PubMed=8404617;  
RA Golos T.G., Durning M., Fisher J.M., Fowler P.D.;  
RT "Cloning of four growth hormone/chorionic somatomotropin-related  
complementary deoxyribonucleic acids differentially expressed during  
pregnancy in the rhesus monkey placenta.";  
RL Endocrinology 133:1744-1752(1993).  
CC -1- FUNCTION: GROWTH HORMONE PLAYS AN IMPORTANT ROLE IN GROWTH  
CONTROL.  
CC -1- SUBCELLULAR LOCATION: SECRETED.  
CC -1- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.  
DR EMBL; L16554; AAA18841.1; -;  
DR HSSP; P01241; IAXI.  
DR InterPro; IPR001400; SOMATOTROPIN.  
DR Pfam; PF00103; hormone; 1.  
DR PRINTS; PR00836; SOMATOTROPIN.  
DR PROSITE; PS00266; SOMATOTROPIN\_1; 1.  
DR PROSITE; PS00338; SOMATOTROPIN\_2; UNKNOWN\_1.  
KW Pituitary; Hormone; Signal.  
FT SIGNAL 1 ?  
FT CHAIN ? 217 SOMATOTROPIN 3.  
FT DISULFID 79 191 BY SIMILARITY.  
FT DISULFID 208 215 BY SIMILARITY.  
SQ SEQUENCE 217 AA; 24874 MW; F1EB6AFDBBA1B185 CRC64;

Query Match 75.4%; Score 523; DB 6; Length 217;  
Best Local Similarity 76.1%; Pred. No. 1.1e-43;  
Matches 102; Conservative 16; Mismatches 16; Indels 0; Gaps 0;  
QY 2 VQTVPLSRFLFDHMLQAHRAHOLAIDTYQEFETYPKDKYSLFHDSTSFSDSIPT 61  
DB 27 VPSVPLSRFLFDHMLQAHRLHQLAFDYQEFETYPKDKYSLFHDSTSFSDSIPT 86  
QY 62 PSNMEETQOKSNLELLRISLLIESWLEPVRFRLSMFANNLVYDTSDDYHLLKDLLEG 121  
DB 87 PSNLEETQOKSNLELLRISLLIQSWLEPVQFLSSVFANNLVYGTSESDDVHLLKDLLEG 146  
QY 122 IOTLMGRLEDGSPR 135  
DB 147 IOTLMRRLEDGSPR 160

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RESULT 7
Q14406 Q14406 PRELIMINARY; PRT; 199 AA.
AC Q14406;
DT 01-NOV-1996 (TrEMBLrel. 01, Created)
DT 01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
DT 01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE CHORIONIC SOMATOMAMOTROPIN CS-5.
OS Homo sapiens (Human)
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX NCBI_TaxID=9606;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=89307277; PubMed=2744760;
RA Chen E.Y., Liao Y.C., Smith D.H., Barrera-Saldana H.A., Gelinas R.E.,
RA Seaburg P.H.;
RT "The human growth hormone locus: nucleotide sequence, biology, and
RT evolution."
RL Genomics 4:479-497(1989).
RN [2]
RP SEQUENCE FROM N.A.
RX MEDLINE=9110258; PubMed=1980158;
RA Vencak-Jones C.L., Phillips J.A. III.;
RT "Hot spots for growth hormone gene deletions in homologous regions
RT outside of Alu repeats."
RL Science 250:1745-1748(1990).
DR EMBL; J03071; AAA52550.1; -.
DR HSP; P01241; I422.
DR InterPro; IPR001400; SOMATOTROPIN.
DR Pfam; PF00103; hormone; 2.
DR PROSITE; PS00338; SOMATOTROPIN_2; 1.
SQ SEQUENCE 199 AA; 22649 MW; 119656E87AFD5C3 CRC64;

Query Match 67.6%; Score 469; DB 4; Length 199;
Best Local Similarity 75.8%; Pred. No. 2e-38;
Matches 100; Conservative 2; Mismatches 12; Indels 18; Gaps 1;

QY 2 VOTVPLSLFDHMLQAHRAHQAIDTYQEFETYPKQKYSFLHDSQTSFSFSDSIPT 61
DB 27 VOTVPLSLFKEAMQAHRAHQAIDTYQEFETSSW-----GMDSIPT 68
QY 62 PSNMEETQKSNLELLRISLLIESWLEPVRFRLSMFANNLVYDTSDDYHLLKDLEEG 121
DB 69 SSNMEETQKSNLELLRISLLIESRLEPVRFRLSTFTNNLVYDTSDDYHLLKDLEEG 128
QY 122 IOTLMGRLEDS 133
DB 129 IQMLMGRLEDS 140

RESULT 8
Q14644 Q14644 PRELIMINARY; PRT; 245 AA.
AC Q14644;
DT 01-JAN-1998 (TrEMBLrel. 05, Created)
DT 01-JAN-1998 (TrEMBLrel. 05, Last sequence update)
DT 01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE PLACENTAL GROWTH HORMONE ISOFORM HGH-V3 PRECURSOR.
GN HGH-V.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX NCBI_TaxID=9606;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=96373737; PubMed=9709963;
RA Boguszewski C.L., Svensson P.A., Jansson T., Clark R.,
RA Carlsson L.M.S., Carlsson B.;
RT "Cloning of two novel growth hormone transcripts expressed in human
RT placenta."
RL J. Clin. Endocrinol. Metab. 83:2878-2885(1998).
DR EMBL; AF006060; AAB71828.1; -.
DR HSP; P01241; I422.
DR InterPro; IPR001400; SOMATOTROPIN.
DR Pfam; PF00103; hormone; 2.
DR PRINTS; PR00836; SOMATOTROPIN.
DR PROSITE; PS00266; SOMATOTROPIN_1; 1.
DR PROSITE; PS00338; SOMATOTROPIN_2; 1.
KW Signal.
FT SIGNAL. 1 26 POTENTIAL.
SQ SEQUENCE 202 AA; 23128 MW; 38B64D011A9197C6 CRC64;

Query Match 62.0%; Score 430.5; DB 4; Length 202;
Best Local Similarity 68.2%; Pred. No. 1.2e-34;
Matches 90; Conservative 12; Mismatches 15; Indels 15; Gaps 1;

QY 4 TVPLSLFDHMLQAHRAHQAIDTYQEFETYPKQKYSFLHDSQTSFSFSDSIPT 63
DB 29 TIFLSRFDNMLRARRLYQLAYDYQEFEEAYILKEQKYSFLONPQTSLCFSESIPT 73
QY 64 NMEETQKSNLELLRISLLIESWLEPVRFRLSMFANNLVYDTSDDYHLLKDLEEG 123

"Cloning of two novel growth hormone transcripts expressed in human
placenta."
J. Clin. Endocrinol. Metab. 83:2878-2885(1998).
EMBL; AF006061; AAB71829.1; -.
HSP; P01241; I422.
InterPro; IPR001400; SOMATOTROPIN.
Pfam; PF00103; hormone; 1.
PROSITE; PS00266; SOMATOTROPIN_1; 1.
KW Signal.
FT SIGNAL. 1 26 POTENTIAL.
SQ SEQUENCE 245 AA; 27101 MW; 14CC7F8CD75D91C8 CRC64;

Query Match 67.1%; Score 466; DB 4; Length 245;
Best Local Similarity 75.0%; Pred. No. 5e-38;
Matches 93; Conservative 14; Mismatches 17; Indels 0; Gaps 0;

QY 4 TVPLSLFDHMLQAHRAHQAIDTYQEFETYPKQKYSFLHDSQTSFSFSDSIPT 63
DB 29 TIFLSRFDNMLRARRLYQLAYDYQEFEEAYILKEQKYSFLONPQTSLCFSESIPT 88
QY 64 NMEETQKSNLELLRISLLIESWLEPVRFRLSMFANNLVYDTSDDYHLLKDLEEG 123
DB 89 NRVTKQKSNLELLRISLLIESWLEPVQLLSRVFANSLVYGASDSNVYRHLKDLEEG 148
QY 124 TLMG 127
DB 149 TLIG 152

RESULT 9
Q14643 Q14643 PRELIMINARY; PRT; 202 AA.
AC Q14643;
DT 01-JAN-1998 (TrEMBLrel. 05, Created)
DT 01-JAN-1998 (TrEMBLrel. 05, Last sequence update)
DT 01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE PLACENTAL GROWTH HORMONE 20KDA ISOFORM PRECURSOR.
GN HGH-V.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX NCBI_TaxID=9606;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=98373737; PubMed=9709963;
RA Boguszewski C.L., Svensson P.A., Jansson T., Clark R.,
RA Carlsson L.M.S., Carlsson B.;
RT "Cloning of two novel growth hormone transcripts expressed in human
RT placenta."
RL J. Clin. Endocrinol. Metab. 83:2878-2885(1998).
DR EMBL; AF006060; AAB71828.1; -.
DR HSP; P01241; I422.
DR InterPro; IPR001400; SOMATOTROPIN.
DR Pfam; PF00103; hormone; 2.
DR PRINTS; PR00836; SOMATOTROPIN.
DR PROSITE; PS00266; SOMATOTROPIN_1; 1.
DR PROSITE; PS00338; SOMATOTROPIN_2; 1.
KW Signal.
FT SIGNAL. 1 26 POTENTIAL.
SQ SEQUENCE 202 AA; 23128 MW; 38B64D011A9197C6 CRC64;

Query Match 62.0%; Score 430.5; DB 4; Length 202;
Best Local Similarity 68.2%; Pred. No. 1.2e-34;
Matches 90; Conservative 12; Mismatches 15; Indels 15; Gaps 1;

QY 4 TVPLSLFDHMLQAHRAHQAIDTYQEFETYPKQKYSFLHDSQTSFSFSDSIPT 63
DB 29 TIFLSRFDNMLRARRLYQLAYDYQEFEEAYILKEQKYSFLONPQTSLCFSESIPT 73
QY 64 NMEETQKSNLELLRISLLIESWLEPVRFRLSMFANNLVYDTSDDYHLLKDLEEG 123
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Db 74 NRKVTQKSNLELLRLISLLIQSWLEPVQLRSVFNLSVYGASDSNVYRHLKDLDEEIQ 133
QY 124 TLMGRLEDSGR 135
Db 134 TLMWRLEDSGR 145

RESULT 10
Q9UNL5 PRELIMINARY; PRT; 171 AA.
AC Q9UNL5;
DT 01-MAY-2000 (Tremblrel. 13, Created)
DT 01-MAY-2000 (Tremblrel. 13, Last sequence update)
DT 01-DEC-2001 (Tremblrel. 19, Last annotation update)
DE GROWTH HORMONE SPLICED VARIANT.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX NCBI_TaxID=9606;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=PIUITARY;
RA Song H., Peng Y., Dai M., Huang Q., Mao Y., Zhang Q., Mao M., Fu G.,
RA Luo M., Chen J., Hu R.;
RT "Human growth hormone variant splicing gene.";
RL Submitted (DEC-1998) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF110644; AAD48584.1; -.
DR HSSP; P01241; IAXI.
DR InterPro; IPR001400; SOMATOTROPIN.
DR Pfam; PF00103; hormone; 2.
DR PRINTS; PR00836; SOMATOTROPIN.
DR PROSITE; PS00266; SOMATOTROPIN_1; 1.
DR PROSITE; PS00338; SOMATOTROPIN_2; 1.
SQ SEQUENCE 171 AA; 19801 MW; 9FA9013991FA9F28 CRC64;

Query Match 58.3%; Score 404.5; DB 4; Length 171;
Best Local Similarity 69.3%; Pred. No. 3.6e-32;
Matches 79; Conservative 15; Mismatches 17; Indels 3; Gaps 1;

QY 4 TVPLSRFLPHAMLAQRAHQAIDTYQFEETYPKDKYSFLHDSQTSFSDSIPTPS 63
Db 29 TIPLSRFLPHAMLAQRAHQAIDTYQFEETYPKDKYSFLHDSQTSFSDSIPTPS 88
QY 64 NMEETQKSNLELLRLISLLIQSWLEPVQLRSVFNLSVYGASDSNVYRHLKDLDEEIQ 117
Db 89 NREETQKSNLELLRLISLLIQSWLEPVQLRSVFNLSVYGASDSNVYRHLKDLDEEIQ 139

RESULT 11
Q9JMK4 PRELIMINARY; PRT; 216 AA.
AC Q9JMK4;
DT 01-OCT-2000 (Tremblrel. 15, Created)
DT 01-OCT-2000 (Tremblrel. 15, Last sequence update)
DT 01-DEC-2001 (Tremblrel. 19, Last annotation update)
DE GROWTH HORMONE PRECURSOR.
OS Cavia porcellus (Guinea pig).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Hystricognathi; Caviidae; Cavia.
OX NCBI_TaxID=10141;
RN [1]
RP SEQUENCE FROM N.A.
RA Odorico D.M., Fuller P.J., Herington A.C.;
RT "Cloning and sequence of guinea pig growth hormone (GH).";
RL Submitted (FEB-2000) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF233853; AAF36409.1; -.
DR HSSP; P01246; 1BST.
DR InterPro; IPR001400; SOMATOTROPIN.
DR Pfam; PF00103; hormone; 1.
DR PRINTS; PR00836; SOMATOTROPIN.
DR PROSITE; PS00266; SOMATOTROPIN_1; 1.
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DR PROSITE; PS00338; SOMATOTROPIN_2; UNKNOWN_1.
KW Signal.
FT SIGNAL 1 26 POTENTIAL.
FT CHAIN 27 216 GROWTH HORMONE.
SQ SEQUENCE 216 AA; 24822 MW; 45996BELL19B08DD3 CRC64;

Query Match 57.3%; Score 398; DB 11; Length 216;
Best Local Similarity 60.3%; Pred. No. 2.1e-31;
Matches 79; Conservative 24; Mismatches 26; Indels 2; Gaps 2;

QY 5 VPLSRFLPHAMLAQRAHQAIDTYQFEETYPKDKYSFLHDSQTSFSDSIPTPS 64
Db 30 MPLSSFGNAVLRAQHLQAADTYKEFERTYIPQGRYS-IHNTQAFCSFETIPAPTD 88
QY 65 MEETQKSNLELLRLISLLIQSWLEPVQLRSVFNLSVYGASDSNVYRHLKDLDEEIQ 124
Db 89 KEAQQRSDVELLHFLSLLIQSWLEPVQLRSVFNLSVYGASDSNVYRHLKDLDEEIQ 147
QY 125 LMGRLEDSGR 135
Db 148 LMRELEDSGR 158

RESULT 12
Q9JMK0 PRELIMINARY; PRT; 190 AA.
AC Q9JMK0;
DT 01-OCT-2000 (Tremblrel. 15, Created)
DT 01-OCT-2000 (Tremblrel. 15, Last sequence update)
DT 01-DEC-2001 (Tremblrel. 19, Last annotation update)
DE GROWTH HORMONE (FRAGMENT).
OS Cavia porcellus (Guinea pig).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Hystricognathi; Caviidae; Cavia.
OX NCBI_TaxID=10141;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE-20231762; PubMed-10767558;
RA Adkins R.M., Vandenberg J., Li W.H.;
RT "Molecular evolution of growth hormone and receptor in the guinea-pig,
RT a mammal unresponsive to growth hormone.";
RL Gene 246:357-363(2000).
DR EMBL; AF238493; AAF67172.1; -.
DR HSSP; P01246; 1BST.
DR InterPro; IPR001400; SOMATOTROPIN.
DR Pfam; PF00103; hormone; 1.
DR PRINTS; PR00836; SOMATOTROPIN.
DR PROSITE; PS00266; SOMATOTROPIN_1; 1.
DR PROSITE; PS00338; SOMATOTROPIN_2; UNKNOWN_1.
FT NON_TER 1
SQ SEQUENCE 190 AA; 21962 MW; 6A0394FC5E707BE8 CRC64;

Query Match 55.9%; Score 388; DB 11; Length 190;
Best Local Similarity 58.8%; Pred. No. 1.7e-30;
Matches 77; Conservative 24; Mismatches 28; Indels 2; Gaps 2;

QY 5 VPLSRFLPHAMLAQRAHQAIDTYQFEETYPKDKYSFLHDSQTSFSDSIPTPS 64
Db 4 MPXSSFGNAVLRAQHLQAADTYKEFERTYIPQGRYS-IHNTQAFCSFETIPAPTD 62
QY 65 MEETQKSNLELLRLISLLIQSWLEPVQLRSVFNLSVYGASDSNVYRHLKDLDEEIQ 124
Db 63 KEAQQRSDVELLHFLSLLIQSWLEPVQLRSVFNLSVYGASDSNVYRHLKDLDEEIQ 121
QY 125 LMGRLEDSGR 135
Db 122 LMRELEDSGR 132

RESULT 13
Q9HBZ1
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ID Q9HBZ1 PRELIMINARY; PRT; 179 AA.
AC Q9HBZ1;
DT 01-MAR-2001 (TrEMBLrel. 16, Created)
DT 01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
DT 01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE GROWTH HORMONE VARIANT.
GN GHV.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OC NCBI_TaxID=9606;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=PIUITARY;
RA Gu J., Huang Q., Li N., Xu S., Han Z., Fu G., Chen Z.;
RT "A novel gene expressed in human pituitary.";
RL Submitted (SEP-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF185611; AAG09699.1; -.
DR HSP; P01241; IAXI.
DR InterPro; IPR001400; SOMATOTROPIN.
DR Pfam; PF00103; hormone; 2.
DR PROSITE; PS00338; SOMATOTROPIN_2; 1.
SQ SEQUENCE 179 AA; 20561 MW; 08875A91BE0B9B7E CRC64;

Query Match 54.9%; Score 381; DB 4; Length 179;
Best Local Similarity 60.6%; Pred. No. 7.7e-30;
Matches 80; Conservative 6; Mismatches 8; Indels 38; Gaps 1;

Qy 4 TVPLSRFLDHAMLAQRAHQLAIDTYQEFETYPKDKYSLFHDSTQSFSDSIPTPS 63
D 1:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
Db 29 TIPLSRFLDHAMLAQRAHQLAIDTYQEFETYPKDKYSLFHDSTQSFSDSIPTPS 88
Qy 64 NMEETQOKSNLELLRLISLLIESWLEPVFLRSMFANNLVYDTSDDYHLLKDLLEG 123
D 1:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
Db 89 NREETQOKSNLELLRLISLLIESWLEPVFLRSMFANNLVYDTSDDYHLLKDLLEG 110
Qy 124 TLMGRLEDGSPR 135
D 1:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
Db 111 TLMGRLEDGSPR 122

RESULT 14
Q28957 PRELIMINARY; PRT; 217 AA.
AC Q28957;
DT 01-NOV-1996 (TrEMBLrel. 01, Created)
DT 01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
DT 01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE GROWTH HORMONE.
OS Sus scrofa (Pig).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
OC NCBI_TaxID=9823;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=PIUITARY;
RA Qi S.-z., Wang X.-z., Zhou S.-w., Jia F., Wang H.-y., Xia, Li, Li J.;
RT "cDNA sequence of the porcine growth hormone.";
RL Chin. J. Biotechnol. 5:35-39(1989).
RN [2]
RP SEQUENCE FROM N.A.
RC TISSUE=PIUITARY;
RA Xu L.;
RL Submitted (JAN-1995) to the EMBL/GenBank/DBJ databases.
DR EMBL; U19787; AAA73477.1; -.
DR HSP; P01246; 1BST.
DR InterPro; IPR001400; SOMATOTROPIN.
DR Pfam; PF00103; hormone; 1.
DR PRINTS; PR00836; SOMATOTROPIN.
DR PROSITE; PS00266; SOMATOTROPIN_1; 1.
SQ SEQUENCE 217 AA; 24470 MW; F708195D8A678831 CRC64;
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Query Match 54.6%; Score 379; DB 6; Length 217;
Best Local Similarity 58.0%; Pred. No. 1.5e-29;
Matches 76; Conservative 24; Mismatches 29; Indels 2; Gaps 2;

Qy 5 VPLSRFLDHAMLAQRAHQLAIDTYQEFETYPKDKYSLFHDSTQSFSDSIPTPSN 64
D 1:||||:||||:||||:||||:||||:||||:||||:||||:||||:
Db 31 MPLSLFANAVLAQRAHQLAADTYKEFDRPYIPEGQRYSLQNAQAACFCSETIPATG 89
Qy 65 MEETQOKSNLELLRLISLLIESWLEPVFLRSMFANNLVYDTSDDYHLLKDLLEG 124
D 1:||||:||||:||||:||||:||||:||||:||||:||||:
Db 90 KDEAQRSDVELLRFLSLLLIQSLGVPQFLSRVFNLSLVFGTSDR-VYEKLKDLLEG 148
Qy 125 LMGRLEDGSPR 135
D 1:||||:||||:||||:||||:||||:||||:||||:||||:
Db 149 LMRELEDGSPR 159

RESULT 15
Q9R2C3 PRELIMINARY; PRT; 216 AA.
AC Q9R2C3;
DT 01-MAY-2000 (TrEMBLrel. 13, Created)
DT 01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
DT 01-JUN-2001 (TrEMBLrel. 17, Last annotation update)
DE GROWTH HORMONE.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Mus.
OC NCBI_TaxID=10090;
RN [1]
RP SEQUENCE FROM N.A.
RA Nguyen T.N.K., Liehaber S.A.;
RT "Mouse Growth Hormone Locus: Nucleotide Sequence and Phylogenetic Analyses.";
RL Submitted (AUG-1995) to the EMBL/GenBank/DBJ databases.
DR EMBL; U34362; AAC99988.1; -.
DR HSP; P01246; 1BST.
DR InterPro; IPR001400; SOMATOTROPIN.
DR Pfam; PF00103; hormone; 1.
DR PRINTS; PR00836; SOMATOTROPIN.
DR PROSITE; PS00266; SOMATOTROPIN_1; 1.
DR PROSITE; PS00338; SOMATOTROPIN_2; 1.
SQ SEQUENCE 216 AA; 24682 MW; FC2A06DA02536B18 CRC64;

Query Match 54.3%; Score 377; DB 11; Length 216;
Best Local Similarity 57.3%; Pred. No. 2.4e-29;
Matches 75; Conservative 24; Mismatches 30; Indels 2; Gaps 2;

Qy 5 VPLSRFLDHAMLAQRAHQLAIDTYQEFETYPKDKYSLFHDSTQSFSDSIPTPSN 64
D 1:||||:||||:||||:||||:||||:||||:||||:||||:||||:
Db 30 MPLSLFANAVLAQRAHQLAADTYKEFDRPYIPEGQRYSLQNAQAACFCSETIPATG 88
Qy 65 MEETQOKSNLELLRLISLLIESWLEPVFLRSMFANNLVYDTSDDYHLLKDLLEG 124
D 1:||||:||||:||||:||||:||||:||||:||||:||||:
Db 89 KEAQQRDTMELLRFLSLLLIQSLGVPQFLSRVFNLSLVFGTSDR-VYEKLKDLLEG 147
Qy 125 LMGRLEDGSPR 135
D 1:||||:||||:||||:||||:||||:||||:||||:||||:
Db 148 LMQELEDGSPR 158

Search completed: September 25, 2002, 10:03:39
Job time: 222 sec
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GenCore version 4.5  
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## OM protein - protein search, using sw model

Run on: September 25, 2002, 09:53:31 : Search time 51.49 Seconds  
(without alignments)  
289.064 Million cell updates/sec

Title: US-09-819-094-24

Perfect score: 680  
1 MFPRIPLSRLFDNAMLRAHR.....LKDEEGIQTLMGRLDEGSP 134Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 747574 seqs, 111073796 residues

Total number of hits satisfying chosen parameters: 747574

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

## Database :

1: A\_Geneseq.032802.\*  
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Pred. No. is the number of results predicted by chance to have a  
score greater than or equal to the score of the result being printed,  
and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	680	100.0	134	20	AAW92265
2	675	99.3	140	10	AAAP91041
3	675	99.3	192	10	AAAP90129
4	675	99.3	192	20	AAW92264
5	675	99.3	261	10	AAAP91299
6	675	99.3	262	12	AAAR11740
7	672	98.8	144	11	AAAR05313
8	672	98.8	262	7	AAAP61033
9	670	98.5	138	9	AAAP1226
10	670	98.5	191	20	AAAY15809
11	670	98.5	191	20	AAAY04396

12	670	98.5	191	20	AAAY04397
13	670	98.5	191	21	AAAY78425
14	670	98.5	193	8	AAAP70260
15	670	98.5	194	20	AAAY30530
16	670	98.5	212	7	AAAP60234
17	670	98.5	214	7	AAAP60232
18	670	98.5	214	7	AAAP60233
19	670	98.5	214	11	AAAR05043
20	670	98.5	214	18	AAAW10425
21	670	98.5	214	20	AAAY31766
22	670	98.5	214	21	AAAY78424
23	670	98.5	214	21	AAAY78460
24	670	98.5	217	11	AAAR05169
25	670	98.5	217	21	AAAB26769
26	670	98.5	217	22	AAAB35428
27	670	98.5	241	20	AAAW88526
28	670	98.5	244	12	AAAR10042
29	670	98.5	245	21	AAAY69791
30	670	98.5	274	21	AAAB26776
31	670	98.5	360	21	AAAB26777
32	670	98.5	397	12	AAAR10043
33	670	98.5	407	22	AAAB49195
34	669	98.4	310	11	AAAR03255
35	665	97.8	214	20	AAAR82801
36	664	97.6	190	21	AAAY8464
37	664	97.6	217	15	AAAR60516
38	664	97.6	217	16	AAAR6818
39	663	97.5	217	7	AAAP60719
40	663	97.5	217	22	AAAE10340
41	663	97.5	344	22	AAAB70473
42	663	97.5	400	21	AAAY79577
43	662	97.4	191	13	AAAR24271
44	662	97.4	191	13	AAAR24272
45	662	97.4	191	13	AAAR24049

## ALIGNMENTS

RESULT 1  
AAW92265 standard; Protein: 134 AA.  
XX  
AC AAW92265;  
DT 08-JUN-1999 (first entry)  
XX  
DE Human anti-angiogenic peptide 16k hgh Met-1Pro133.  
KW Human; anti-angiogenic; prolactin; placental lactogen; hPL; angiogenesis;  
KW growth hormone; hGH; hGH-V; capillary endothelial cell proliferation;  
KW placental vascularisation; pregnancy; treatment; angiogenic disease;  
KW tumour; inhibitor; malignant; angiodioma; arteriovenous malformation;  
KW arthritis; atherosclerotic plaques; corneal graft neovascularisation;  
KW wound healing; proliferative retinopathy; macular degeneration; trachoma;  
KW granulation; glaucoma; ocular; uveitis; fracture; Osler-Weber syndrome;  
KW psoriasis; fibroplasia; scleroderma; Kaposi's sarcoma; vascular adhesion;  
KW ulcer; leukaemia; reproductive disorder; contraceptive agent;  
KW gene therapy; pre-eclampsia; intrauterine growth retardation;  
KW placental dysfunction.  
KW  
KW  
OS Homo sapiens.  
XX  
PN WO9851323-A1.  
XX  
PD 19-NOV-1998.  
XX  
PF 12-MAY-1998; 98MO-US09691.  
XX  
PR 13-MAY-1997; 97US-0046394.  
XX  
PA  
XX (REGC ) UNIV CALIFORNIA.  
XX

Mutant human 22kDa  
Human growth hormo  
Met-ASP-human grow  
Recombinant human  
Sequence of AP sig  
Sequence of Escher  
Sequence of Escher  
Human growth hormo  
Synthetic human gr  
Human growth hormo  
Human growth hormo  
Human growth hormo  
Human growth hormo  
Secretory cell pro  
Secretory cell lin  
Fusion of killer t  
Plasamid POW885 hum  
MWpSP-MWpmp20-(His  
Human growth hormo  
Human growth hormo  
Plasamid POW360 enc  
Human growth hormo  
Fusion protein of  
Human growth hormo  
Amino acid sequenc  
Human somatotropin  
Human growth hormo  
Sequence of pre an  
Human growth hormo  
Npro-hgh fusion pr  
Rat retino bindin  
Mature human growt  
Mature human growt  
hgh variant #1 - 1

PI Martial JA, Struman I, Taylor R, Weiner RI.  
XX  
XX WPI: 1999-045192/04.  
DR N-PSDB; AAX01707.  
XX  
XX New anti-angiogenic peptides - comprise N-terminal fragments of  
PT human placental lactogen, human growth hormone, growth hormone  
PT variant or human prolactin  
XX  
PS Claim 4; Page 49-50; 87pp; English.  
XX  
XX This invention describes novel human anti-angiogenic peptides derived  
CC from 10 to 150 consecutive amino acids selected from the N-terminal end  
CC of human placental lactogen (hPL), human growth hormone (hGH), growth  
CC hormone variant (hGH-V), or human prolactin. Such peptides (i) inhibit  
CC capillary endothelial cell proliferation and organisation (ii) inhibit  
CC angiogenesis in chick chorioallantoic membrane and (iii) binds to at  
CC least one specific receptor which does not bind an intact full length  
CC hGH, hPL, prolactin or hGH-V. The invention also describes a method for  
CC diagnosing a probable abnormality of placental vasculatisation during  
CC pregnancy. The peptides can be used for treating an angiogenic disease in  
CC a subject, for inhibiting tumour formation or growth in a patient or for  
CC modulating vasculatisation of a patient's placenta. In particular, the  
CC peptides can be used for preventing or treating e.g. malignant tumours,  
CC angiolipoma, arteriovenous malformation, arthritic such as rheumatoid  
CC arthritis, atherosclerotic plaques, corneal graft neovascularisation,  
CC delayed wound healing, proliferative retinopathy such as diabetic  
CC retinopathy, macular degeneration, granulations such as those occurring  
CC in haemophilic joints, inappropriate vasculatisation in wound healing  
CC such as hypertrophic scars or keloid scars, neovascular glaucoma, ocular  
CC tumour, uveitis, non-union fractures, Osler-Weber syndrome, psoriasis,  
CC pyogenic glaucoma, retrolental fibroplasia, scleroderma, solid tumours,  
CC Kaposi's sarcoma, trachoma, vascular adhesions, chronic varicose ulcers,  
CC leukaemia, and reproductive disorders such as follicular and luteal cysts  
CC and choriocarcinoma. They can also be used as contraceptive agents. DNA  
CC encoding the peptides can be used in gene therapy. The measurement of  
CC abnormal levels of N-terminal fragments of hGH, hGH-V, prolactin or hPL  
CC can be used in assays for impairment of vascular development associated  
CC with pre-eclampsia, intrauterine growth retardation, and placental  
CC dysfunction.  
XX  
XX Sequence 134 AA;  
SQ

Query Match 100.0%; Score 680; DB 20; Length 134;  
Best Local Similarity 100.0%; Pred. No. 3.8e-59;  
Matches 134; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MFPITPLSRFLDNAMLRHRLHQLAFDTYQEFEEAYTPKQKXSFQONPQTSLSFSSESIP 60  
DB 1 mfpitplsrflidnamlrhrlhqlafdtqyqefeeaytpkqkysflqnpqtslsfsesip 60

QY 61 TPSNEETQOKSNLELRISLLIQSWLEPYQFLRSVFANSFLYGSADSNVYDLKDLDE 120  
DB 61 tpsneetqoksnlelrislliqswlepyqflrsvfansflvygsadsnvydlkdlde 120

QY 121 GIQTLMGRLDEGSP 134  
DB 121 gqtlmgrldegsp 134

RESULT 2  
AAP91041  
ID AAP91041 standard; protein: 140 AA.  
XX  
XX AAP91041;  
AC  
XX  
XX 14-DEC-1989 (first entry).  
DT  
XX  
XX Human growth hormone segment.  
DE  
XX  
XX Human growth hormone; fusion protein; thrombin;  
KW geriatric dementia; nervous disorders; human nerve factor.

XX  
OS Homo sapiens (human).  
XX  
XX EP229175-A.  
PN  
XX  
XX 23-AUG-1989.  
PD  
XX  
XX 17-FEB-1989; 89EP-0102795.  
PF  
XX  
XX 19-FEB-1988; 88JP-0035042.  
PR  
XX  
XX (TOYJ ) TOSOH CORP.  
PA  
XX  
XX Ohtsuka E;  
PI  
XX  
XX WPI: 1989-243092/34.  
DR  
XX  
XX New human nerve growth factor gene encoding fusion protein  
PT - having cleavage site for thrombin, useful for treating geriatric  
PT dementia, etc.  
XX  
PS Disclosure; page 21; 38pp; English.  
XX  
XX Human growth hormone segment, used at the N-terminal of a fusion  
CC protein, which contains a thrombin recognition site, and human beta nerve  
CC growth factor (beta-NGF) at the C-terminal. Beta-NGF can be used to  
CC control geriatric dementia and other nervous disorders, and can be  
CC released from the fusion protein by incubation with thrombin (see  
CC AA90577-B, AAP91034, AAP91299).  
XX  
XX Sequence 140 AA;  
SQ

Query Match 99.3%; Score 675; DB 10; Length 140;  
Best Local Similarity 99.3%; Pred. No. 1.2e-58;  
Matches 133; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 MFPITPLSRFLDNAMLRHRLHQLAFDTYQEFEEAYTPKQKXSFQONPQTSLSFSSESIP 60  
DB 1 mfpitplsrflidnamlrhrlhqlafdtqyqefeeaytpkqkysflqnpqtslsfsesip 60

QY 61 TPSNEETQOKSNLELRISLLIQSWLEPYQFLRSVFANSFLYGSADSNVYDLKDLDE 120  
DB 61 tpsneetqoksnlelrislliqswlepyqflrsvfansflvygsadsnvydlkdlde 120

QY 121 GIQTLMGRLDEGSP 134  
DB 121 gqtlmgrldegsp 134

RESULT 3  
AAP90129  
ID AAP90129 standard; protein: 192 AA.  
XX  
XX AAP90129;  
AC  
XX  
XX 06-FEB-1996 (revised)  
DT 01-NOV-1989 (first entry)  
XX  
XX Human growth hormone.  
DE  
XX  
XX Human growth hormone; fusion protein; recombinant  
KW vector.  
XX  
XX Homo sapiens (Human).  
OS  
XX  
XX JP01144981-A.  
PN  
XX  
XX 07-JUN-1989.  
PD  
XX  
XX 02-DEC-1987; 87JP-0304937.  
PF  
XX  
XX 02-DEC-1987; 87JP-0304937.

```

XX (WAKU ) WAKONGA SEIYAKU KK.
XX
XX WPI: 1989-209284/29.
XX N-PSDB: AAN90269.
XX
XX Recombinant vector contg. fusion protein - consisting of human
XX growth hormone or deriv. ligated to foreign protein, for stability
XX and high yield.
XX
XX PS Disclosure; Fig 1; 19pp; Japanese.
XX
XX The invention consists of a vector contg. a fusion protein which is
XX formed by ligating, downstream of a promoter, hgh or a deriv. (pref.
XX formed by substin. of Met-14 with leu) and a foreign protein.
XX Stability of the vector in the host is greatly increased so the
XX protein yield is higher.
XX
XX SQ Sequence 192 AA;
XX
Query Match 99.3%; Score 675; DB 10; Length 192;
Best Local Similarity 99.3%; Pred. No. 1.8e-58;
Matches 133; Conservative 0; Mismatches 1; Indels 0; Gaps 0;
QY 1 MFPTPLSRLEFNDAMRAHRLHQLAFDTYQEFPEAYIPKCKYSLFONPOTSLSFSESIP 60
DB 1 MFPTPLSRLEFNDAMRAHRLHQLAFDTYQEFPEAYIPKCKYSLFONPOTSLSFSESIP 60
QY 61 TFSNREETOOKSNLELRISLLTIQSWLEPVOFLRSVFANSLSVYGASDSNVYDLKDLDEE 120
DB 61 TFSNREETOOKSNLELRISLLTIQSWLEPVOFLRSVFANSLSVYGASDSNVYDLKDLDEE 120
QY 121 GIOTLMGRLEDESP 134
DB 121 GIOTLMGRLEDESP 134
QY 121 GIOTLMGRLEDESP 134
DB 121 GIOTLMGRLEDESP 134

RESULT 4
AAM92264
ID AAM92264 standard; Protein; 192 AA.
XX
XX AAM92264;
XX
XX 08-JUN-1999 (first entry)
XX
XX Human anti-angiogenic peptide hGH Met-1Phe191.
XX
XX Human; anti-angiogenic; prolactin; placental lactogen; hPL; angiogenesis;
XX growth hormone; hGH; hGH-V; capillary endothelial cell proliferation;
XX placental vascularisation; pregnancy; treatment; angiogenic disease;
XX tumour; inhibitor; malignant; angiofibroma; arteriovenous malformation;
XX arthritis; atherosclerotic plaques; corneal graft neovascularisation;
XX wound healing; proliferative retinopathy; macular degeneration; trachoma;
XX granuloma; glaucoma; ocular; uveitis; fracture; Osler-Weber syndrome;
XX psoriasis; fibroplasia; scleroderma; Kaposi's sarcoma; vascular adhesion;
XX ulcer; leukaemia; reproductive disorder; contraceptive agent;
XX gene therapy; pre-eclampsia; intrauterine growth retardation;
XX placental dysfunction.
XX
XX OS Homo sapiens.
XX
XX PN W09851323-A1.
XX
XX PD 19-NOV-1998.
XX
XX PF 12-MAY-1998; 98MO-US09691.
XX
XX PR 13-MAY-1997; 97US-0046394.
XX
XX (REGC ) UNIV CALIFORNIA.
XX
XX PA Martial JA, Struman I, Taylor R, Weiner RI.
XX
PI

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XX WPI: 1999-045192/04.
XX N-PSDB: AAX01706.
XX
XX New anti-angiogenic peptides - comprise N-terminal fragments of
XX human placental lactogen, human growth hormone, growth hormone
XX variant or human prolactin
XX
XX Example 3; Page 49; 87pp; English.
XX
XX This invention describes novel human anti-angiogenic peptides derived
XX from 10 to 150 consecutive amino acids selected from the N-terminal end
XX of human placental lactogen (hPL), human growth hormone (hGH), growth
XX hormone variant (hGH-V), or human prolactin. Such peptides (i) inhibit
XX capillary endothelial cell proliferation and organisation (ii) inhibit
XX angiogenesis in chick chorioallantoic membrane and (iii) binds to at
XX least one specific receptor which does not bind an intact full length
XX hGH, hPL, prolactin or hGH-V. The invention also describes a method for
XX diagnosing a probable abnormality of placental vascularisation during
XX pregnancy. The peptides can be used for treating an angiogenic disease in
XX a subject, for inhibiting tumour formation or growth in a patient or for
XX modulating vascularisation of a patient's placenta. In particular, the
XX peptides can be used for preventing or treating e.g. malignant tumours,
XX angiofibroma, arteriovenous malformation, arthritic such as rheumatoid
XX arthritis, atherosclerotic plaques, corneal graft neovascularisation,
XX delayed wound healing, proliferative retinopathy such as diabetic
XX retinopathy, macular degeneration, granulations such as those occurring
XX in haemophilic joints, inappropriate vascularisation in wound healing
XX such as hypertrophic scars or keloid scars, neovascular glaucoma, ocular
XX tumour, uveitis, non-union fractures, Osler-Weber syndrome, psoriasis,
XX pyogenic glaucoma, retrolental fibroplasia, scleroderma, solid tumours,
XX Kaposi's sarcoma, trachoma, vascular adhesions, chronic varicose ulcers,
XX leukaemia, and reproductive disorders such as follicular and luteal cysts
XX and choriocarcinoma. They can also be used as contraceptive agents. DNA
XX encoding the peptides can be used in gene therapy. The measurement of
XX abnormal levels of N-terminal fragments of hGH, hGH-V, prolactin or hPL
XX can be used in assays for impairment of vascular development associated
XX with pre-eclampsia, intrauterine growth retardation, and placental
XX dysfunction.
XX
XX SQ Sequence 192 AA;
XX
Query Match 99.3%; Score 675; DB 20; Length 192;
Best Local Similarity 99.3%; Pred. No. 1.8e-58;
Matches 133; Conservative 0; Mismatches 1; Indels 0; Gaps 0;
QY 1 MFPTPLSRLEFNDAMRAHRLHQLAFDTYQEFPEAYIPKCKYSLFONPOTSLSFSESIP 60
DB 1 MFPTPLSRLEFNDAMRAHRLHQLAFDTYQEFPEAYIPKCKYSLFONPOTSLSFSESIP 60
QY 61 TFSNREETOOKSNLELRISLLTIQSWLEPVOFLRSVFANSLSVYGASDSNVYDLKDLDEE 120
DB 61 TFSNREETOOKSNLELRISLLTIQSWLEPVOFLRSVFANSLSVYGASDSNVYDLKDLDEE 120
QY 121 GIOTLMGRLEDESP 134
DB 121 GIOTLMGRLEDESP 134

RESULT 5
AAP91299
ID AAP91299 standard; Protein; 261 AA.
XX
XX AAP91299;
XX
XX 14-DEC-1989 (first entry).
XX
XX Human nerve growth factor and human growth hormone fusion protein.
XX
XX Human nerve growth factor; fusion protein; thrombin;
XX geriatric dementia; nervous disorders; human growth hormone.
XX
XX

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```

OS Homo sapiens (human).
XX
XX Key
XX Location/Qualifiers
XX Region 1..140
XX Region 141..143
XX Region 144..261
XX
XX EP329175-A.
XX
XX 23-AUG-1989.
XX
XX 17-FEB-1989; 89EP-0102795.
XX
XX 19-FEB-1988; 88JP-0035042.
XX
XX (TOXJ ) TOSOH CORP.
XX
XX Ohtsuka E.
XX
XX WPI; 1989-243092/34.
XX
XX New human nerve growth factor gene encoding fusion protein
XX - having cleavage site for thrombin, useful for treating geriatric
XX dementia, etc.
XX
XX Claim 36; page 31-32; 38pp; English.
XX
XX Fusion protein consisting of human growth hormone at the
XX N-terminal end (1st region), a 3 amino acid sequence representing
XX thrombin recognition site, and human beta nerve growth factor (beta-NGF)
XX at the C-terminal. Beta-NGF can be used to control geriatric dementia
XX and other nervous disorders, and can be released from the fusion
XX protein by incubation with thrombin (see AAN90577-8, AAP91034,
XX AAP91041).
XX
XX Sequence 261 AA:
SQ

```

Query Match 99.3%; Score 675; DB 10; Length 261;  
 Best Local Similarity 99.3%; Pred. No. 2,7e-58;  
 Matches 133; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

```

OY 1 MFPTPLSLRFPNAMLRAHRLHQLAFDPTQYQFEFAYIPKEQKYSFLQNPOTSLSFSSEIP 60
XX |
XX 1 mptplpserlfifnamlrhrlhqlafdtvgfefeaylpkqkysflqnpotslcfesesip 60
XX |
XX 61 TPSNREETQOKSNLELRISLLLIQSWLEPVQFLRSVPANSVLYGASDSNVYDLKDLLE 120
XX |
XX 61 tpsnreecqkknlelrlisllllqswlepvgflrsvfanslvygadsnvydlkdllee 120
XX |
XX 121 GIOTLMGRLEOGSP 134
XX |
XX 121 giotlmgrleogdsp 134
XX |
XX
XX
XX RESULT 6
XX AAR11740
XX ID AAR11740 standard; Protein: 262 AA.
XX
XX AAR11740;
XX
XX 25-JUN-1991 (first entry)
XX
XX Human growth hormone/human nerve growth factor beta fusion protein.
XX
XX hGH; hNGF; nervous system diseases; dementia.
XX
XX Homo sapiens.
XX
XX JP03067598-A.
XX
XX 22-MAR-1991.
XX
XX

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```

PF 07-JUL-1989; 89JP-0202835.
XX
XX 07-AUG-1989; 89JP-0202835.
XX
XX (TOXJ ) TOSOH CORP.
XX
XX WPI; 1991-128768/18.
XX
XX N-PSDB; AAQ11578.
XX
XX Purificn. of human neuron growth factor beta-subunit-contg. protein -
XX by contacting with gel having cation exchange gp. in presence of
XX urea
XX
XX Disclosure ; fig 1; 7pp; Japanese.
XX
XX A recombinant human nerve growth factor beta subunit-contg. protein
XX can be produced as this fusion protein. It is purified by contacting
XX a gel having a cation exchange gp. with the fusion protein, in the
XX presence of urea. The purified protein is useful in a medicament
XX for treating disorders of the nervous system, eg dementia.
XX
XX Sequence 262 AA:
SQ

```

Query Match 99.3%; Score 675; DB 12; Length 262;  
 Best Local Similarity 99.3%; Pred. No. 2,7e-58;  
 Matches 133; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

```

OY 1 MFPTPLSLRFPNAMLRAHRLHQLAFDPTQYQFEFAYIPKEQKYSFLQNPOTSLSFSSEIP 60
XX |
XX 1 mptplpserlfifnamlrhrlhqlafdtvgfefeaylpkqkysflqnpotslcfesesip 60
XX |
XX 61 TPSNREETQOKSNLELRISLLLIQSWLEPVQFLRSVPANSVLYGASDSNVYDLKDLLE 120
XX |
XX 61 tpsnreecqkknlelrlisllllqswlepvgflrsvfanslvygadsnvydlkdllee 120
XX |
XX 121 GIOTLMGRLEOGSP 134
XX |
XX 121 giotlmgrleogdsp 134
XX |
XX
XX
XX RESULT 7
XX AAR05313
XX ID AAR05313 standard; protein: 144 AA.
XX
XX AAR05313;
XX
XX 19-JUL-1990 (first entry)
XX
XX Segment of B-cell stimulatory factor-2 (IL-5).
XX
XX B-cell stimulatory factor-2; interleukin-5.
XX
XX Homo sapiens.
XX
XX JP02013375-A.
XX
XX 17-JAN-1990.
XX
XX 01-JUL-1988; 88JP-0162556.
XX
XX 01-JUL-1988; 88JP-0162556.
XX
XX (TOXJ ) TOSOH CORP.
XX
XX WPI; 1990-062207/09.
XX
XX N-PSDB; AAQ02028.
XX
XX Prepn. of human B-cell differentiation factor - from specified DNA
XX sequence segment, by recombinant DNA technique, gives protein of
XX specified amino acid sequence.
XX
XX Disclosure; Page 9; 17pp; Japanese.
XX
XX

```

XX The sequence encoding this protein can be fused with DNA encoding B-cell  
 CC differentiation factor (IL-6) and ligated into an expression vector for  
 CC prodn. of a fusion protein.  
 CC See also AAR05311.  
 XX  
 SQ Sequence 144 AA;

Query Match 98.8%; Score 672; DB 11; Length 144;  
 Best Local Similarity 98.5%; Pred. No. 2.5e-58;  
 Matches 132; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 MFPTIPLSRLFDNMLRAHRLHQLAPDTYQEFEEAYIPKEOKYSFLQNPOTSLSFSESIP 60  
 |||||||  
 Db 1 mfpitpilsrlfdnamlrahrhqlafdtlygefeyayipkeqkysflpnqtslcfesesip 60  
 QY 61 TPSNREETQOKSNLELRISILLIQSWLEPVOFLRSVFANSIYVYASDSNVYDLKDL 120  
 |||||||  
 Db 61 tpsnreecqgksnlellrlisilliqswlepvyqlrsvfanslyvgasdsnvylkdl 120  
 QY 121 GIOTLMGRLEDGSP 134  
 |||||||  
 Db 121 giotlmgrledgsp 134

RESULT 8  
 AAP61033  
 ID AAP61033 standard; Protein; 262 AA.

XX AAP61033;

XX 25-OCT-1991 (first entry)

XX Human beta-nerve growth factor gene product.

XX Beta-NGF; E.coli; ds.

XX Homo sapiens.

XX Key Location/Qualifiers

FT Protein 145..262

PN JP61205485-A.

PD 11-SEP-1986.

PF 09-MAR-1985; 85JP-0045773.

PR 09-MAR-1985; 85JP-0045773.

PA (OTSU/) OTSUKA E.

DR WPI; 1986-281696/43.

PT Gene segment of human nerve growth factor - used in prodn. of  
 NGF-producing recombinant Escherichia strain.

PS Claim 32; Page 482; 71pp; Japanese.

XX The protein is a direct translation of the upstream tryptophan  
 CC promoter-operator lacking its attenuation sequence and human  
 CC beta-NGF sequence. The product may be efficiently expressed from a  
 CC transformed E.coli expression system.  
 CC See also AAN60816-7.

XX Sequence 262 AA;

Query Match 98.8%; Score 672; DB 7; Length 262;  
 Best Local Similarity 98.5%; Pred. No. 5.3e-58;  
 Matches 132; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 MFPTIPLSRLFDNMLRAHRLHQLAPDTYQEFEEAYIPKEOKYSFLQNPOTSLSFSESIP 60  
 |||||||  
 Db 1 mfpitpilsrlfdnamlrahrhqlafdtlygefeyayipkeqkysflpnqtslcfesesip 60  
 QY 61 TPSNREETQOKSNLELRISILLIQSWLEPVOFLRSVFANSIYVYASDSNVYDLKDL 120  
 |||||||  
 Db 61 tpsnreecqgksnlellrlisilliqswlepvyqlrsvfanslyvgasdsnvylkdl 120  
 QY 121 GIOTLMGRLEDGSP 134  
 |||||||  
 Db 121 giotlmgrledgsp 134

RESULT 9  
 AAP81226  
 ID AAP81226 standard; protein; 138 AA.

XX AAP81226;

XX 20-NOV-1990 (first entry)

XX Sequence of protein with somatomedin-like activity.

XX Growth hormone.

XX Synthetic.

XX JP63167798-A.

PD 11-JUL-1988.

PF 29-DEC-1986; 86JP-0310177.

PR 29-DEC-1986; 86JP-0310177.

PA (TOYO ) TOYO SODA MFG KK.

DR WPI; 1988-232632/33.

DR N-PSDB; AAN81605.

XX Polypeptide with somatomedin-like activity -  
 PT by culturing bacterium transformed by plasmid contg. gene  
 PT segment with specified DNA sequence

PS Claim 2(1); Page 609; 9pp; Japanese.

XX The polypeptide (AAP81226) with somatomedin-like activity and the DNA  
 CC (AAN81605) encoding it are claimed. A Met residual gp. may be added to  
 CC the N-terminal. The polypeptide acts on the bone structure of mammals,  
 CC including humans, to promote bone growth. The polypeptide has high  
 CC production rate and is easily extracted from bacterial culture medium  
 CC and refined for use as a bone growth accelerator.

XX Sequence 138 AA;

Query Match 98.5%; Score 670; DB 9; Length 138;  
 Best Local Similarity 99.2%; Pred. No. 3.7e-58;  
 Matches 132; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 2 FPTIPLSRLFDNMLRAHRLHQLAPDTYQEFEEAYIPKEOKYSFLQNPOTSLSFSESIP 61  
 |||||||  
 Db 1 fptipilsrlfdnamlrahrhqlafdtlygefeyayipkeqkysflpnqtslcfesesip 60  
 QY 62 PSNREETQOKSNLELRISILLIQSWLEPVOFLRSVFANSIYVYASDSNVYDLKDL 121  
 |||||||  
 Db 61 psnreecqgksnlellrlisilliqswlepvyqlrsvfanslyvgasdsnvylkdl 120  
 QY 122 IOTLMGRLEDGSP 134  
 |||||||  
 Db 121 iotlmgrledgsp 133

```

RESULT 10
AA15809
ID AA15809 standard; protein; 191 AA.
XX
AC AA15809;
XX
DE 28-JUL-1999 (first entry)
XX
DE Primary amino acid sequence of native human growth hormone.
XX
KW Detection; fluoresce; illegal misuse; growth substance; athlete;
KW domesticated farm animal; cattle; human growth hormone.
XX
OS Homo sapiens.
XX
PN MO9926069-A1.
XX
PD 27-MAY-1999.
XX
PF 16-NOV-1998; 98MO-GB03449.
XX
PR 14-NOV-1997; 97GB-0023955.
XX
PA (GENE-) GENERIC BIOLOGICALS LTD.
XX
PI Atkinson A, Murphy JP.
XX
DR WPI: 1999-338072/28.
XX
PT Use of tagged exogenous polypeptide
XX
PS Disclosure; Fig 1; 38pp; English.
XX
CC The specification describes a method of detecting an exogenously
CC administered substance from a naturally-occurring endogenous substance,
CC the exogenous substance being tagged so that it fluoresces differently
CC from the endogenous one at a suitable wavelength. The tagging may
CC consist of one or more substitutions in tagged growth hormone
CC selected from G40Y, F52Y, W66F, Y, L, I or V F103Y or I137Y;
CC The method is used to distinguish between exogenously administered
CC substances as compared to naturally-occurring endogenous substances.
CC Especially mentioned is the illegal misuse of growth substances by
CC athletes or in domesticated farm animals e.g. cattle. The present
CC sequence represents native human growth hormone which may be used
CC in the method of the invention.
XX
SO Sequence 191 AA;

Query Match          98.5%; Score 670; DB 20; Length 191;
Best Local Similarity 99.2%; Pred. No. 5.6e-58;
Matches 132; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 2 FPTPLSLRFDNMLRAHRLHQLAFDHYQFEFEAYIPKEOKYSFLONPOTSISFSSEIPT 61
DB 1 fptplslrlfndamrlahrlnhqlafdyqfeefayipkeqkysflqnpqtscisessipt 60
QY 62 PSNREETOQKSNLELRISLLIQSWLEPVQFURSVFANSVLYGASDSNWDLKDLDEEG 121
DB 61 psneeetqgksnlellrlisllllqswlepvqflrsvfanslvlygsadsnvydlldleeg 120
QY 122 IQTLMGRLEDCSP 134
DB 121 iqltmgrleddsp 133

RESULT 11
AA104396
ID AA104396 standard; protein; 191 AA.
XX
AC AA104396;
XX
DE 29-JUN-1999 (first entry)
XX

```

```

XX
DE Natural human 22kDa growth hormone.
XX
KW Human; 22kDa growth hormone; hGH; mutant; thrombin; resistance;
KW plasmin; decomposition.
XX
OS Homo sapiens.
XX
PN JF11092499-A.
XX
PD 06-APR-1999.
XX
PF 22-SEP-1997; 97JP-0275277.
XX
PR 22-SEP-1997; 97JP-0275277.
XX
PA (SUMU ) SUMITOMO SEIYAKU KK.
XX
PD WPI: 1999-283567/24.
XX
PT A human growth hormone mutant - with equivalent activity to natural
PT human growth hormone
XX
PS Example 1; Page 5-6; 10pp; Japanese.
XX
CC The present invention describes a human growth hormone mutant in which
CC the 134th Arg and the 135th Thr are replaced respectively by Asp and Pro
CC in the 1st to the 191st amino acid sequence of natural type human 22 kDa
CC growth hormone (hGH) and which has a resistance against decomposition by
CC thrombin. The present sequence represents the natural hGH. Also
CC described are: (1) a hGH mutant in which the 134th Arg, the 135th Thr
CC and the 140th Lys are replaced respectively by Asp, Pro and Ala in the
CC amino acid sequence of natural type hGH and which has a resistance
CC against decomposition by thrombin and plasmin; and (2) a drug
CC preparation containing the above hGH mutant as the active component.
CC The mutant hGH shows an activity approximately equivalent to that of
CC natural type hGH and shows a high stability in blood and body fluid.
XX
SO Sequence 191 AA;

Query Match          98.5%; Score 670; DB 20; Length 191;
Best Local Similarity 99.2%; Pred. No. 5.6e-58;
Matches 132; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 2 FPTPLSLRFDNMLRAHRLHQLAFDHYQFEFEAYIPKEOKYSFLONPOTSISFSSEIPT 61
DB 1 fptplslrlfndamrlahrlnhqlafdyqfeefayipkeqkysflqnpqtscisessipt 60
QY 62 PSNREETOQKSNLELRISLLIQSWLEPVQFURSVFANSVLYGASDSNWDLKDLDEEG 121
DB 61 psneeetqgksnlellrlisllllqswlepvqflrsvfanslvlygsadsnvydlldleeg 120
QY 122 IQTLMGRLEDCSP 134
DB 121 iqltmgrleddsp 133

RESULT 12
AA104397
ID AA104397 standard; protein; 191 AA.
XX
AC AA104397;
XX
DE 29-JUN-1999 (first entry)
XX
DE Mutant human 22kDa growth hormone.
XX
KW Human; 22kDa growth hormone; hGH; mutant; thrombin; resistance;
KW plasmin; decomposition.
XX
OS Homo sapiens.
OS Synthetic.

```

XX JP11092499-A.  
XX  
XX 06-APR-1999.  
XX  
XX 22-SEP-1997; 97JP-02752277.  
XX  
XX 22-SEP-1997; 97JP-02752277.  
XX  
XX (SDMU ) SUMITOMO SEIYAKU KK.  
XX  
XX MPI: 1999-283567/24.  
XX  
XX A human growth hormone mutant - with equivalent activity to natural  
PI human growth hormone  
XX  
XX  
PS Claim 1; Page 6-7; 10pp; Japanese.  
XX  
XX The present invention describes a human growth hormone mutant in which  
CC the 134th Arg and the 135th Thr are replaced respectively by Asp and Pro  
CC in the 1st to the 191st amino acid sequence of natural type human 22 kDa  
CC growth hormone (hGH) and which has a resistance against decomposition by  
CC thrombin. The present sequence represents the mutant hGH. Also  
CC described are: (1) a hGH mutant in which the 134th Arg, the 135th Thr  
CC and the 140th Lys are replaced respectively by Asp, Pro and Ala in the  
CC amino acid sequence of natural type hGH and which has a resistance  
CC against decomposition by thrombin and plasmin; and (2) a drug  
CC preparation containing the above hGH mutant as the active component.  
CC The mutant hGH shows an activity approximately equivalent to that of  
CC natural type hGH and shows a high stability in blood and body fluid.  
XX  
XX Sequence 191 AA:  
SQ  
  
Query Match 98.5%; Score 670; DB 20; Length 191;  
Best Local Similarity 99.2%; Pred. No. 5.6e-58;  
Matches 132; Conservative 0; Mismatches 1; Indels 0; Gaps 0;  
  
QY 2 FFTPIPLSRFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEOKYSFLQNPQTSLSFSSES IPT 61  
Db 1 fptipisrlfdnamlrahrlhqlafdt yqefeeayipkeqysflqnpqt slcfssesipt 60  
  
QY 62 PSNREETOOKSNLELRISLLIOSWLEPYQFLRSVFANSIYVYGASDSNVYDLKDL EEG 121  
Db 61 psnreetqgksnlelrlisllliqswlepyqflrsvfansi yvgasdsnv ydlkdl eeg 120  
  
QY 122 IOTLMGRLEDGSP 134  
Db 121 iqtlmgrledgsp 133  
  
RESULT 13  
AAV78425  
ID AAV78425 standard; Protein; 191 AA.  
XX  
XX AAV78425;  
XX  
XX 09-MAY-2000 (first entry)  
XX  
XX Human growth hormone amino acid sequence.  
DE  
XX Human growth hormone; hGH; prolactin; placental lactogen;  
KW modification; mutagenesis.  
XX  
XX Homo sapiens.  
XX  
XX OS  
XX US6013478-A.  
XX  
XX 11-JAN-2000.  
XX  
XX 24-JUN-1998; 98US-0104036.  
XX  
XX 26-OCT-1989; 89US-0428066.  
XX  
XX PR

PR 27-APR-1992; 92US-0875204.  
PR 13-OCT-1992; 92US-0960227.  
PR 02-FEB-1994; 94US-0190723.  
PR 06-JUN-1995; 95US-0483039.  
PR 30-JUN-1997; 97US-0903398.  
PR 28-OCT-1988; 88US-0264611.  
XX  
XX (GETH ) GENENTECH INC.  
XX  
XX Wells JA, Cunningham BC;  
XX  
XX MPI: 2000-159873/14.  
XX  
XX Recombinant production of variant polypeptides, e.g. growth hormone  
PI variants with altered receptor specificity, using cells transformed  
PI with DNA selected by scanning mutagenesis in at least one peptide  
PI domain -  
XX  
XX  
PS Example 2; Fig 2; 83pp; English.  
XX  
XX The present invention describes the production of a polypeptide variant  
CC (I) comprising segment substituted and residue substituted growth  
CC hormone, prolactin or placental lactogens. The method is particularly  
CC used to produce variants of growth hormone (GH), prolactin or placental  
CC lactogen, but may also be applied to receptors, interferons, and  
CC colony-stimulating factors. A particular application is the production  
CC of human GH variants with altered (decreased or increased) binding  
CC interaction with the somatogenic receptor, i.e. compounds useful as  
CC human GH (ant)agonists and which may have higher potency for stimulating  
CC other human GH receptors, and as standards or tracers in immunoassays  
CC for human GH. This method of DNA selection identifies the biologically  
CC active residues in active domains, including those critical for  
CC interaction with different targets. The present sequence represents the  
CC human GH amino acid sequence, which is used in the exemplification of  
CC the present invention.  
XX  
XX Sequence 191 AA:  
SQ  
  
Query Match 98.5%; Score 670; DB 21; Length 191;  
Best Local Similarity 99.2%; Pred. No. 5.6e-58;  
Matches 132; Conservative 0; Mismatches 1; Indels 0; Gaps 0;  
  
QY 2 FFTPIPLSRFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEOKYSFLQNPQTSLSFSSES IPT 61  
Db 1 fptipisrlfdnamlrahrlhqlafdt yqefeeayipkeqysflqnpqt slcfssesipt 60  
  
QY 62 PSNREETOOKSNLELRISLLIOSWLEPYQFLRSVFANSIYVYGASDSNVYDLKDL EEG 121  
Db 61 psnreetqgksnlelrlisllliqswlepyqflrsvfansi yvgasdsnv ydlkdl eeg 120  
  
QY 122 IOTLMGRLEDGSP 134  
Db 121 iqtlmgrledgsp 133  
  
RESULT 14  
AAP70260  
ID AAP70260 standard; protein; 193 AA.  
XX  
XX AAP70260;  
XX  
XX 06-MAR-1991 (first entry)  
XX  
XX Met-Asp-human growth hormone.  
DE  
XX Human growth hormone;  
KW  
XX Homo sapiens.  
XX  
XX OS  
XX EP217529-A.  
XX  
XX 08-APR-1987.  
XX  
XX PD

XX 20-AUG-1986; 86EP-0306452.  
 XX  
 XX 26-AUG-1985; 85US-0769221.  
 XX  
 XX (ELIL ) ELI LILLY AND CO.  
 XX  
 XX Jaskunas SR JR;  
 XX  
 XX WPI: 1987-243638/35.  
 DR N-PSDB; AAN70393.  
 XX  
 XX Hybrid transcriptional and translational activating sequence - derive  
 PT from the bacteriophage lambda pL promoter and E.coli lpp activating  
 PT sequence.  
 XX  
 XX Disclosure; page 47-8; 68pp; English.  
 PS  
 XX The human growth hormone (HGH) with N-terminal Met-Asp may be  
 CC expressed using the lambda pL-lpp hybrid transcriptional and  
 CC translational activating sequence. See also AAN70161.  
 CC  
 XX  
 SQ Sequence 193 AA;

Query Match 98.5%; Score 670; DB 8; Length 193;  
 Best Local Similarity 99.2%; Pred. No. 5.7e-58;  
 Matches 132; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 2 FFTPLSLRFLPNAMLRARHLQLAFDYVOEFEEAYIRKQKYSPLQNPQTSLSFSSESIPR 61  
 DB 3 fptclplslrlfdnamlrarhlrqldafdyqefeeayirkeqkysfllqnpqtslcsesipt 62  
 OY 62 PSNREETOQKSNLELRISLLIQSWLEPVQFLRSVFANSIYVGASDSNYYDLKDLDEEG 121  
 DB 63 psnreetqkknlellrlsllllqswlepyqflrsvfanslvygadsnvydlkdldeeg 122  
 OY 122 IQTLMGRLDGGSP 134  
 DB 123 iqtimgrldegsp 135

RESULT 15  
 AAY30530  
 ID AAY30530 standard; protein; 194 AA.  
 XX  
 AC AAY30530;  
 XX  
 DT 15-NOV-1999 (first entry)  
 XX  
 DE Recombinant human somatotropin protein.  
 XX  
 KW Somatotropin protein; protein stabilization; aggregation; stability;  
 KW animal growth rate; feed utilization; carcass quality; milk production;  
 KW wool production.  
 XX  
 OS Homo sapiens.  
 XX  
 PN US9591972-A.  
 PD 14-SEP-1999.  
 XX  
 PF 06-FEB-1995; 95US-0383621.  
 XX  
 PR 25-SEP-1991; 91US-0766142.  
 PR 04-MAY-1990; 90US-0519047.  
 PR 06-FEB-1995; 95US-0383621.  
 XX  
 PA (AMCY ) AMERICAN CYANAMID CO.  
 PI Bohlen P, Buckwalter BL, Cady SM, Daley MJ, Seddon AP;  
 PI Shieh H;  
 XX

DR WPI: 1999-550481/46.  
 XX  
 XX Derivatized proteins and polypeptides, useful for improving  
 PT properties of e.g. a somatotropin, interleukin, interferon, growth  
 PT factor, protein kinase or antithrombin III  
 XX  
 XX Disclosure: Column 5; 19pp; English.  
 XX  
 XX The present sequence represents a somatotropin protein. The specification  
 CC describes a method for stabilizing proteins by modification of cysteine  
 CC residues. The derivatized cysteine residues reduce aggregation and  
 CC improves stability. The derivatized proteins are useful for alleviating  
 CC disease states in animals, improving the growth rate of animals,  
 CC especially meat producing animals, and increasing the efficiency of feed  
 CC utilization. Some of these compounds also are effective for enhancing the  
 CC carcass quality of the animals, i.e. increasing the lean meat to fat  
 CC ratio of the animals. Some of the compounds are effective for increasing  
 CC milk production in lactating animals and improving wool production in  
 CC sheep and other animals raised for coats.  
 CC  
 XX  
 SQ Sequence 194 AA;

Query Match 98.5%; Score 670; DB 20; Length 194;  
 Best Local Similarity 99.2%; Pred. No. 5.7e-58;  
 Matches 132; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 2 FFTPLSLRFLPNAMLRARHLQLAFDYVOEFEEAYIRKQKYSPLQNPQTSLSFSSESIPR 61  
 DB 4 fptclplslrlfdnamlrarhlrqldafdyqefeeayirkeqkysfllqnpqtslcsesipt 63  
 OY 62 PSNREETOQKSNLELRISLLIQSWLEPVQFLRSVFANSIYVGASDSNYYDLKDLDEEG 121  
 DB 64 psnreetqkknlellrlsllllqswlepyqflrsvfanslvygadsnvydlkdldeeg 123  
 OY 122 IQTLMGRLDGGSP 134  
 DB 124 iqtimgrldegsp 136

Search completed: September 25, 2002, 09:57:39  
 Job time: 248 sec







GenCore version 4.5  
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OM protein - protein search, using sw model

Run on: September 25, 2002, 09:56:01 ; Search time 20.68 Seconds  
(without alignments)  
158.270 Million cell updates/sec

Title: US-09-819-094-24

Perfect score: 680  
Sequence: 1 MFPTPLSRFLFDNMLRAHR.....LKDEEGIQTLMGLEDGSP 134

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 231628 seqs, 24425594 residues

Total number of hits satisfying chosen parameters: 231628

Minimum DB seq length: 0  
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%  
Maximum Match 100%

Listing first 45 summaries

Database : Issued Patents AA:\*  
1: /cgn2\_6/ptodata/2/1aa/5A.COMB.pep.\*  
2: /cgn2\_6/ptodata/2/1aa/5B.COMB.pep.\*  
3: /cgn2\_6/ptodata/2/1aa/6A.COMB.pep.\*  
4: /cgn2\_6/ptodata/2/1aa/6B.COMB.pep.\*  
5: /cgn2\_6/ptodata/2/1aa/PCTUS.COMB.pep.\*  
6: /cgn2\_6/ptodata/2/1aa/backfiles1.pep.\*

Pred. No. is the number of results predicted by the result to have a score greater than or equal to the score of the change being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	675	99.3	192	1	US-08-093-383-1
2	670	98.5	191	4	US-09-284-878-5
3	670	98.5	194	2	US-08-383-621-4
4	670	98.5	194	3	US-08-459-906-4
5	670	98.5	217	3	US-08-589-028-10
6	670	98.5	217	3	US-08-784-582-10
7	670	98.5	217	3	US-08-785-271-10
8	670	98.5	217	4	US-08-759-628-11
9	670	98.5	217	4	US-09-284-878-11
10	670	98.5	274	3	US-08-784-582-71
11	670	98.5	360	3	US-08-784-582-73
12	664	97.6	191	4	US-09-465-461-1
13	664	97.6	217	1	US-08-187-756C-4
14	664	97.6	217	1	US-08-469-486-51
15	664	97.6	217	2	US-08-469-658-51
16	664	97.6	217	2	US-08-710-324A-4
17	657	96.6	191	4	US-08-800-215C-18
18	655	96.3	191	4	US-08-800-215C-16
19	655	96.3	191	4	US-08-800-215C-20
20	574.5	84.5	176	3	US-08-791-728-1
21	568.5	83.6	176	3	US-08-791-728-2
22	545	80.1	168	6	5424199-3
23	543.5	79.9	198	1	US-08-187-756C-5
24	543.5	79.9	198	2	US-08-710-324A-5
25	445	65.4	191	1	US-08-468-824-8
26	443	65.1	191	1	US-07-963-331D-4
27	440	64.7	190	1	US-08-388-267C-2

28	440	64.7	190	4	US-09-277-720-2	Sequence 2, Appl1
29	440	64.7	191	6	5210180-1	Patent No. 5210180
30	440	64.7	193	1	US-07-621-197C-2	Sequence 2, Appl1
31	440	64.7	193	1	US-08-363-982-2	Sequence 2, Appl1
32	440	64.7	193	2	US-08-383-621-1	Sequence 1, Appl1
33	440	64.7	193	3	US-08-459-906-1	Sequence 1, Appl1
34	440	64.7	216	2	US-09-105-651-3	Sequence 3, Appl1
35	438	64.4	190	1	US-07-963-331D-3	Sequence 3, Appl1
36	438	64.4	191	1	US-07-922-523-1	Sequence 1, Appl1
37	438	64.4	191	2	US-08-222-987-1	Sequence 1, Appl1
38	435	64.0	177	1	US-08-187-756C-6	Sequence 6, Appl1
39	435	64.0	177	2	US-08-710-324A-6	Sequence 6, Appl1
40	432	63.5	216	2	US-09-105-651-1	Sequence 1, Appl1
41	425	62.5	191	1	US-08-093-383-3	Sequence 3, Appl1
42	422	62.1	193	2	US-08-383-621-3	Sequence 3, Appl1
43	422	62.1	193	3	US-08-459-906-3	Sequence 3, Appl1
44	418	61.5	191	1	US-07-885-689A-29	Sequence 29, Appl1
45	418	61.5	193	2	US-08-383-621-2	Sequence 2, Appl1

## ALIGNMENTS

RESULT 1  
US-08-093-383-1  
Sequence 1, Application US/08093383  
Patent No. 5489529  
GENERAL INFORMATION:  
APPLICANT: Deboer, Herman A.  
APPLICANT: Heyneker, Herbert L.  
APPLICANT: Seeburg, Peter H.  
TITLE OF INVENTION: DNA for Expression of Bovine Growth Hormone  
NUMBER OF SEQUENCES: 30  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Genentech, Inc.  
STREET: 460 Point San Bruno Blvd  
CITY: South San Francisco  
STATE: California  
COUNTRY: USA  
ZIP: 94080  
COMPUTER READABLE FORM:  
MEDIUM TYPE: 5.25 inch, 360 Kb floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: patin (Genentech)  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/093,383  
FILING DATE: 14-JUL-1993  
CLASSIFICATION: 435  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: 07/619827  
FILING DATE: 28-NOV-1990  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: 07/198824  
FILING DATE: 05-APR-1988  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: 06/632361  
FILING DATE: 19-JUL-1984  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: 06/303687  
FILING DATE: 18-SEP-1981  
ATTORNEY/AGENT INFORMATION:  
NAME: Johnston, Sean A.  
REGISTRATION NUMBER: P35, 910  
REFERENCE/DOCKET NUMBER: 46C4  
TELEPHONE: 415/225-3562  
TELEFAX: 415/952-9881  
TELEX: 910/371-7168  
INFORMATION FOR SEQ ID NO: 1:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 192 amino acids  
TYPE: amino acid

TOPOLOGY: linear  
US-08-093-383-1

Query Match 99.3%; Score 675; DB 1; Length 192;  
Best Local Similarity 99.3%; Pred. No. 3.6e-72;  
Matches 133; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 MFPTPLSRLEFDNMLRAHRLHQLAFDTYQEFEEAYIPKQKYSFLQNPQTSLSFSESIP 60  
DB 1 MFPTPLSRLEFDNMLRAHRLHQLAFDTYQEFEEAYIPKQKYSFLQNPQTSLSFSESIP 60  
QY 61 PSNREETOQKSNLELRISLLIOSWLEPVQFLRSVFANSIYVGASDSNVYDLKDLERG 120  
DB 61 PSNREETOQKSNLELRISLLIOSWLEPVQFLRSVFANSIYVGASDSNVYDLKDLERG 120  
QY 121 IOTLMGRLEDGSP 134  
DB 121 IOTLMGRLEDGSP 134

## RESULT 2

US-09-284-878-5  
Sequence 5, Application US/09284878  
Patent No. 6342375

GENERAL INFORMATION:  
APPLICANT: Olazaran, Martha Guerrero  
APPLICANT: Saidana, Hugo Barrera  
APPLICANT: Salvado, Jose Maria Viader  
TITLE OF INVENTION: Genetically Modified Methylotrophic P. pastoris Yeast for the  
TITLE OF INVENTION: Production and Secretion of the Human Growth Hormone  
FILE REFERENCE: 1829.0010000  
CURRENT APPLICATION NUMBER: US/09/284,878  
CURRENT FILING DATE: 1999-07-21  
PRIOR APPLICATION NUMBER: PCT/MX97/00033  
PRIOR FILING DATE: 1997-10-24  
NUMBER OF SEQ ID NOS: 9  
SOFTWARE: PatentIn Ver. 2.1  
SEQ ID NO 5  
LENGTH: 191  
TYPE: PRT  
ORGANISM: Homo sapiens  
US-09-284-878-5

Query Match 98.5%; Score 670; DB 4; Length 191;  
Best Local Similarity 99.2%; Pred. No. 1.4e-71;  
Matches 132; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 2 FPTPLSRLEFDNMLRAHRLHQLAFDTYQEFEEAYIPKQKYSFLQNPQTSLSFSESIP 61  
DB 1 FPTPLSRLEFDNMLRAHRLHQLAFDTYQEFEEAYIPKQKYSFLQNPQTSLSFSESIP 60  
QY 62 PSNREETOQKSNLELRISLLIOSWLEPVQFLRSVFANSIYVGASDSNVYDLKDLERG 121  
DB 61 PSNREETOQKSNLELRISLLIOSWLEPVQFLRSVFANSIYVGASDSNVYDLKDLERG 120  
QY 122 IOTLMGRLEDGSP 134  
DB 121 IOTLMGRLEDGSP 133

## RESULT 3

US-08-383-621-4  
Sequence 4, Application US/08383621  
Patent No. 5951972

GENERAL INFORMATION:  
APPLICANT: Daley, Michael J.  
APPLICANT: Buckwalter, Brian L.  
APPLICANT: Cady, Susan M.  
APPLICANT: Shieh, Hong-Ming  
APPLICANT: Bohlen, Peter  
APPLICANT: Seddon, Andrew P.

TITLE OF INVENTION: Stabilization of Somatotropins And Other  
TITLE OF INVENTION: Proteins By Modification Of Cysteine Residues  
NUMBER OF SEQUENCES: 11  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Dr. Estelle J. Tsevdos  
STREET: 1937 West Main Street, P.O. Box 60  
CITY: Stamford  
STATE: Connecticut  
COUNTRY: U.S.A.  
ZIP: 06904-0060

COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: PatentIn Release #1.0, Version #1.25

CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/383,621  
FILING DATE: 06-FEB-1995  
CLASSIFICATION: 514

PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 07/766,142  
FILING DATE: 25-SEP-1991

ATTORNEY/AGENT INFORMATION:  
NAME: Tsevdos, Estelle J.  
REGISTRATION NUMBER: 31,145

REFERENCE/DOCKET NUMBER: 31,278-01  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 203-321-2756  
TELEFAX: 203-321-2971

TELEX: 203-710-474-4059  
INFORMATION FOR SEQ ID NO: 4:

SEQUENCE CHARACTERISTICS:  
LENGTH: 194 amino acids  
TYPE: amino acid

TOPOLOGY: linear  
MOLECULE TYPE: protein

US-08-383-621-4

Query Match 98.5%; Score 670; DB 2; Length 194;  
Best Local Similarity 99.2%; Pred. No. 1.4e-71;  
Matches 132; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 2 FPTPLSRLEFDNMLRAHRLHQLAFDTYQEFEEAYIPKQKYSFLQNPQTSLSFSESIP 61  
DB 4 FPTPLSRLEFDNMLRAHRLHQLAFDTYQEFEEAYIPKQKYSFLQNPQTSLSFSESIP 63  
QY 62 PSNREETOQKSNLELRISLLIOSWLEPVQFLRSVFANSIYVGASDSNVYDLKDLERG 121  
DB 64 PSNREETOQKSNLELRISLLIOSWLEPVQFLRSVFANSIYVGASDSNVYDLKDLERG 123  
QY 122 IOTLMGRLEDGSP 134  
DB 124 IOTLMGRLEDGSP 136

RESULT 4  
US-08-459-906-4  
Sequence 4, Application US/08459906  
Patent No. 6010999

GENERAL INFORMATION:  
APPLICANT: Daley, Michael J.  
APPLICANT: Buckwalter, Brian L.  
APPLICANT: Cady, Susan M.  
APPLICANT: Shieh, Hong-Ming  
APPLICANT: Bohlen, Peter  
APPLICANT: Seddon, Andrew P.  
TITLE OF INVENTION: Stabilization of Somatotropins and Other  
TITLE OF INVENTION: Proteins by Modification of Cysteine Residues  
NUMBER OF SEQUENCES: 11  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: American Cyanamid Company  
STREET: One Cyanamid Plaza

```

: CITY: Wayne
: STATE: New Jersey
: COUNTRY: U.S.A.
: ZIP: 07470-8426
: COMPUTER READABLE FORM:
: MEDIUM TYPE: Floppy disk
: COMPUTER: IBM PC compatible
: OPERATING SYSTEM: PC-DOS/MS-DOS
: SOFTWARE: Patentin Release #1.0, Version #1.25
: CURRENT APPLICATION DATA:
: APPLICATION NUMBER: US/08/459,906
: FILING DATE: 02-JUN-1995
: CLASSIFICATION: 514
: ATTORNEY/AGENT INFORMATION:
: NAME: Webster, Darryl L.
: REGISTRATION NUMBER: 34,276
: REFERENCE/DOCKET NUMBER: 31,278-03
: TELECOMMUNICATION INFORMATION:
: TELEPHONE: 201-831-3247
: TELEFAX: 201-831-3305
: INFORMATION FOR SEQ ID NO: 4:
: SEQUENCE CHARACTERISTICS:
: LENGTH: 194 amino acids
: TYPE: amino acid
: TOPOLOGY: linear
: MOLECULE TYPE: protein
: US-08-459-906-4

Query Match          98.5%; Score 670; DB 3; Length 194;
Best Local Similarity 99.2%; Pred. No. 1,4e-71;
Matches 132; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY  2  FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEOKYSFLQNPQTSLSFSSES IPT 61
    |||||||
DB  4  FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEOKYSFLQNPQTSLSFSSES IPT 63
    |||||||

QY  62  PSNREFTQOKSNLELLRLISLLIOSMLEPVQFLRSVFANSILVYGASDSNYYDLKDL EEG 121
    |||||||
DB  64  PSNREFTQOKSNLELLRLISLLIOSMLEPVQFLRSVFANSILVYGASDSNYYDLKDL EEG 123
    |||||||

QY  122  IOTLMGRLEDGSP 134
    |||||||
DB  124  IOTLMGRLEDGSP 136
    |||||||

RESULT  5
US-08-589-028-10
: Sequence 10, Application US/08589028
: Patent No. 6087129
: GENERAL INFORMATION:
: APPLICANT: Newgard, Christopher B.
: APPLICANT: Halban, Philippe
: APPLICANT: No. 6087129mington, Karl D.
: APPLICANT: Clark, Samuel A.
: APPLICANT: Thigpen, Anice E.
: APPLICANT: Quade, Christian
: APPLICANT: Kruse, Fred
: TITLE OF INVENTION: Recombinant Expression of Proteins From
: TITLE OF INVENTION: Secretary Cell Lines
: NUMBER OF SEQUENCES: 50
: CORRESPONDENCE ADDRESS:
: ADDRESSEE: Arnold, White & Durkee
: STREET: P. O. Box 4433
: CITY: Houston
: STATE: TX
: COUNTRY: USA
: ZIP: 77210-4433
: COMPUTER READABLE FORM:
: MEDIUM TYPE: Floppy disk
: COMPUTER: IBM PC compatible
: OPERATING SYSTEM: PC-DOS/MS-DOS
: SOFTWARE: Patentin Release #1.0, Version #1.30
```

```

: CURRENT APPLICATION DATA:
: APPLICATION NUMBER: US/08/589,028
: FILING DATE: Concurrently Herewith
: CLASSIFICATION: 435
: ATTORNEY/AGENT INFORMATION:
: NAME: Highlander, Steven L.
: REGISTRATION NUMBER: 47,642
: REFERENCE/DOCKET NUMBER: UTSD:426\HYL
: TELECOMMUNICATION INFORMATION:
: TELEPHONE: (512) 418-3000
: TELEFAX: (512) 474-7577
: INFORMATION FOR SEQ ID NO: 10:
: SEQUENCE CHARACTERISTICS:
: LENGTH: 217 amino acids
: TYPE: amino acid
: STRANDEDNESS:
: TOPOLOGY: linear
: US-08-589-028-10

Query Match          98.5%; Score 670; DB 3; Length 217;
Best Local Similarity 99.2%; Pred. No. 1,7e-71;
Matches 132; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY  2  FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEOKYSFLQNPQTSLSFSSES IPT 61
    |||||||
DB  27  FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEOKYSFLQNPQTSLSFSSES IPT 86
    |||||||

QY  62  PSNREFTQOKSNLELLRLISLLIOSMLEPVQFLRSVFANSILVYGASDSNYYDLKDL EEG 121
    |||||||
DB  87  PSNREFTQOKSNLELLRLISLLIOSMLEPVQFLRSVFANSILVYGASDSNYYDLKDL EEG 146
    |||||||

QY  122  IOTLMGRLEDGSP 134
    |||||||
DB  147  IOTLMGRLEDGSP 159
    |||||||

RESULT  6
US-08-784-582-10
: Sequence 10, Application US/08784582
: Patent No. 6110707
: GENERAL INFORMATION:
: APPLICANT: Newgard, Christopher B.
: APPLICANT: Halban, Philippe A.
: APPLICANT: No. 6110707mington, Karl D.
: APPLICANT: Clark, Samuel A.
: APPLICANT: Thigpen, Anice E.
: APPLICANT: Quade, Christian
: APPLICANT: Kruse, Fred
: APPLICANT: McGarry, Dennis
: TITLE OF INVENTION: RECOMBINANT EXPRESSION OF PROTEINS FROM
: TITLE OF INVENTION: SECRETORY CELL LINES
: NUMBER OF SEQUENCES: 79
: CORRESPONDENCE ADDRESS:
: ADDRESSEE: Arnold, White & Durkee
: STREET: P. O. Box 4433
: CITY: Houston
: STATE: Texas
: COUNTRY: USA
: ZIP: 77210
: COMPUTER READABLE FORM:
: MEDIUM TYPE: Floppy disk
: COMPUTER: IBM PC compatible
: OPERATING SYSTEM: PC-DOS/MS-DOS
: SOFTWARE: Patentin Release #1.0, Version #1.30
: CURRENT APPLICATION DATA:
: APPLICATION NUMBER: US/08/784,582
: FILING DATE: Concurrently Herewith
: CLASSIFICATION: 435
: PRIOR APPLICATION DATA:
: APPLICATION NUMBER: US 60/028,427
: FILING DATE: 15-OCT-1996
: PRIOR APPLICATION DATA:
```

APPLICATION NUMBER: US 08/589,028  
FILING DATE: 19-JAN-1996  
ATTORNEY/AGENT INFORMATION:  
NAME: Highlander, Steven L.  
REGISTRATION NUMBER: 37,642  
REFERENCE/DOCKET NUMBER: UTSD:514  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 512/418-3000  
TELEFAX: 512/474-7577  
INFORMATION FOR SEQ ID NO: 10:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 217 amino acids  
TYPE: amino acid  
STRANDEDNESS:  
TOPOLOGY: linear  
US-08-784-582-10

Query Match 98.5%; Score 670; DB 3; Length 217;  
Best Local Similarity 99.2%; Pred. No. 1.7e-71;  
Matches 132; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 2 PPTIPLSRLFDNAMIARHLHQLAFDYYQFEFEAYIPKEQKYSFLQNPQTSLSFSISPT 61  
DB 27 PPTIPLSRLFDNAMIARHLHQLAFDYYQFEFEAYIPKEQKYSFLQNPQTSLSFSISPT 86  
QY 62 PSNRETOOKSNLELRISLLSIQSWLEPYQFLRSVPANSIVYGASDSNVYDLKDLREG 121  
DB 87 PSNRETOOKSNLELRISLLSIQSWLEPYQFLRSVPANSIVYGASDSNVYDLKDLREG 146  
QY 122 IOTLMGRLEDGSP 134  
DB 147 IOTLMGRLEDGSP 159

RESULT 7  
US-08-785-271-10  
Sequence 10, Application US/08785271  
Patent No. 6194176  
GENERAL INFORMATION:  
APPLICANT: Newgard, Christopher B.  
APPLICANT: Halban, Philippe A.  
APPLICANT: No. 6194176minjon, Karl D.  
APPLICANT: Clark, Samuel A.  
APPLICANT: Thigpen, Anice E.  
APPLICANT: Quade, Christian  
APPLICANT: Kruse, Fred  
TITLE OF INVENTION: RECOMBINANT EXPRESSION OF PROTEINS FROM  
NUMBER OF SEQUENCES: 56  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Arnold, White & Durkee  
STREET: P. O. Box 4433  
CITY: Houston  
STATE: Texas  
COUNTRY: USA  
ZIP: 77210  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patentin Release #1.0, Version #1.30  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/785,271  
FILING DATE: Concurrently Herewith  
CLASSIFICATION: 435  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 08/589,028  
FILING DATE: 19-JAN-1996  
ATTORNEY/AGENT INFORMATION:  
NAME: Highlander, Steven L.  
REGISTRATION NUMBER: 37,642  
REFERENCE/DOCKET NUMBER: UTSD:513

TELECOMMUNICATION INFORMATION:  
TELEPHONE: 512/418-3000  
TELEFAX: 512/474-7577  
INFORMATION FOR SEQ ID NO: 10:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 217 amino acids  
TYPE: amino acid  
STRANDEDNESS:  
TOPOLOGY: linear  
US-08-785-271-10

Query Match 98.5%; Score 670; DB 4; Length 217;  
Best Local Similarity 99.2%; Pred. No. 1.7e-71;  
Matches 132; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 2 PPTIPLSRLFDNAMIARHLHQLAFDYYQFEFEAYIPKEQKYSFLQNPQTSLSFSISPT 61  
DB 27 PPTIPLSRLFDNAMIARHLHQLAFDYYQFEFEAYIPKEQKYSFLQNPQTSLSFSISPT 86  
QY 62 PSNRETOOKSNLELRISLLSIQSWLEPYQFLRSVPANSIVYGASDSNVYDLKDLREG 121  
DB 87 PSNRETOOKSNLELRISLLSIQSWLEPYQFLRSVPANSIVYGASDSNVYDLKDLREG 146  
QY 122 IOTLMGRLEDGSP 134  
DB 147 IOTLMGRLEDGSP 159

RESULT 8  
US-08-759-628-11  
Sequence 11, Application US/08759628  
Patent No. 622546  
GENERAL INFORMATION:  
APPLICANT: Altman, Scott W.  
APPLICANT: Rock, Fernando L.  
APPLICANT: Bazan, J. Fernando  
APPLICANT: Kastelein, Robert A.  
TITLE OF INVENTION: MUTATIONAL VARIANTS OF MAMMALIAN PROTEINS  
NUMBER OF SEQUENCES: 11  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: DNAX Research Institute  
STREET: 901 California Avenue  
CITY: Palo Alto  
STATE: California  
COUNTRY: USA  
ZIP: 94304-1104  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patentin Release #1.0, Version #1.30  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/759,628  
FILING DATE: 05-DEC-1996  
CLASSIFICATION: 435  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 60/008,574  
FILING DATE: 06-DEC-1995  
ATTORNEY/AGENT INFORMATION:  
NAME: Ching, Edwin P.  
REGISTRATION NUMBER: 34,090  
REFERENCE/DOCKET NUMBER: DX05520  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 415-852-9196  
TELEFAX: 415-496-1200  
INFORMATION FOR SEQ ID NO: 11:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 217 amino acids  
TYPE: amino acid  
STRANDEDNESS: single  
TOPOLOGY: linear  
MOLECULE TYPE: protein

```

;
; FEATURE:
; NAME/KEY: Peptide
; LOCATION: 32..53
;
; FEATURE:
; NAME/KEY: Peptide
; LOCATION: 94..115
;
; FEATURE:
; NAME/KEY: Peptide
; LOCATION: 133..153
;
; FEATURE:
; NAME/KEY: Peptide
; LOCATION: 192..210
;
; OTHER INFORMATION:
; OTHER INFORMATION: /note="The peptides above are
;                     depicted in Figure 1"
US-08-759-628-11
```

```

Query Match          98.5%; Score 670; DB 4; Length 217;
Best Local Similarity 99.2%; Pred. No. 1.7e-71;
Matches 132; Conservative 0; Mismatches 1; Indels 0; Gaps 0;
```

```

OY 2 FPIPLSRFLFDNAMLRAHRLHQLAFDTYQFEFEAYIPKEOKYSFLONPOTSLSFSESIP 61
    |||||||
DB 27 FPIPLSRFLFDNAMLRAHRLHQLAFDTYQFEFEAYIPKEOKYSFLONPOTSLSFSESIP 86
    |||||||
OY 62 PSNREETQOKSNLELRISLLIQSWLEPVOFLRSVFANSLVYGASDSNVYDLKDLLEG 121
    |||||||
DB 87 PSNREETQOKSNLELRISLLIQSWLEPVOFLRSVFANSLVYGASDSNVYDLKDLLEG 146
    |||||||
OY 122 IQTLMGRLDGGSP 134
    |||||||
DB 147 IQTLMGRLDGGSP 159
    |||||||
```

```

RESULT 9
US-09-284-878-1
; Sequence 1, Application US/09284878
; Patent No. 6342375
;
; GENERAL INFORMATION:
; APPLICANT: Olazaran, Martha Guerrero
; APPLICANT: Saldana, Hugo Barrera
; APPLICANT: Salgado, Jose Maria Viader
; TITLE OF INVENTION: Genetically Modified Methylotrophic P. pastoris Yeast for the
; FILE OF INVENTION: Production and Secretion of the Human Growth Hormone
; FILE REFERENCE: 1829.0010000
; CURRENT APPLICATION NUMBER: US/09/284,878
; CURRENT FILING DATE: 1999-07-21
; PRIOR APPLICATION NUMBER: PCT/MX97/00033
; PRIOR FILING DATE: 1997-10-24
; NUMBER OF SEQ ID NOS: 9
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 1
; LENGTH: 217
; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-284-878-1
```

```

Query Match          98.5%; Score 670; DB 4; Length 217;
Best Local Similarity 99.2%; Pred. No. 1.7e-71;
Matches 132; Conservative 0; Mismatches 1; Indels 0; Gaps 0;
```

```

OY 2 FPIPLSRFLFDNAMLRAHRLHQLAFDTYQFEFEAYIPKEOKYSFLONPOTSLSFSESIP 61
    |||||||
DB 27 FPIPLSRFLFDNAMLRAHRLHQLAFDTYQFEFEAYIPKEOKYSFLONPOTSLSFSESIP 86
    |||||||
OY 62 PSNREETQOKSNLELRISLLIQSWLEPVOFLRSVFANSLVYGASDSNVYDLKDLLEG 121
    |||||||
DB 87 PSNREETQOKSNLELRISLLIQSWLEPVOFLRSVFANSLVYGASDSNVYDLKDLLEG 146
    |||||||
OY 122 IQTLMGRLDGGSP 134
    |||||||
DB 147 IQTLMGRLDGGSP 159
    |||||||
```

```

RESULT 10
US-08-784-582-71
; Sequence 71, Application US/08784582
; Patent No. 6110707
;
; GENERAL INFORMATION:
; APPLICANT: Newgard, Christopher B.
; APPLICANT: Halban, Philippe A.
; APPLICANT: No. 6110707/mington, Karl D.
; APPLICANT: Clark, Samuel A.
; APPLICANT: Thigpen, Anice E.
; APPLICANT: Ouade, Christian
; APPLICANT: Kruse, Fred
; APPLICANT: McGarry, Dennis
; TITLE OF INVENTION: RECOMBINANT EXPRESSION OF PROTEINS FROM
; FILE OF INVENTION: SECRETORY CELL LINES
; NUMBER OF SEQUENCES: 79
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Arnold, White & Durkee
; STREET: P.O. Box 4433
; CITY: Houston
; STATE: Texas
; COUNTRY: USA
; ZIP: 77210
```

```

; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/784,582
; FILING DATE: Concurrently Herewith
; CLASSIFICATION: 435
```

```

; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/028,427
; FILING DATE: 15-OCT-1996
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 08/589,028
; FILING DATE: 19-JAN-1996
; ATTORNEY/AGENT INFORMATION:
; NAME: Highlander, Steven L.
; REGISTRATION NUMBER: 37,642
; REFERENCE/DOCKET NUMBER: UTSID:514
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 512/418-3000
; TELEFAX: 512/474-7577
```

```

; INFORMATION FOR SEQ ID NO: 71:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 274 amino acids
; TYPE: amino acid
; STRANDEDNESS:
; TOPOLOGY: linear
US-08-784-582-71
```

```

Query Match          98.5%; Score 670; DB 3; Length 274;
Best Local Similarity 99.2%; Pred. No. 2.4e-71;
Matches 132; Conservative 0; Mismatches 1; Indels 0; Gaps 0;
```

```

OY 2 FPIPLSRFLFDNAMLRAHRLHQLAFDTYQFEFEAYIPKEOKYSFLONPOTSLSFSESIP 61
    |||||||
DB 27 FPIPLSRFLFDNAMLRAHRLHQLAFDTYQFEFEAYIPKEOKYSFLONPOTSLSFSESIP 86
    |||||||
OY 62 PSNREETQOKSNLELRISLLIQSWLEPVOFLRSVFANSLVYGASDSNVYDLKDLLEG 121
    |||||||
DB 87 PSNREETQOKSNLELRISLLIQSWLEPVOFLRSVFANSLVYGASDSNVYDLKDLLEG 146
    |||||||
OY 122 IQTLMGRLDGGSP 134
    |||||||
DB 147 IQTLMGRLDGGSP 159
    |||||||
```

```
RESULT 11
US-08-784-582-73
; Sequence 73, Application US/08784582
; Patent No. 6110707
; GENERAL INFORMATION:
; APPLICANT: Newgard, Christopher B.
; APPLICANT: Halban, Philippe A.
; APPLICANT: No. 6110707milling, Karl D.
; APPLICANT: Clark, Samuel A.
; APPLICANT: Thigpen, Anice E.
; APPLICANT: Quade, Christian
; APPLICANT: Kruse, Fred
; APPLICANT: McGarity, Dennis
; TITLE OF INVENTION: RECOMBINANT EXPRESSION OF PROTEINS FROM
; NUMBER OF SEQUENCES: 79
; CORRESPONDENCE ADDRESSES:
; ADDRESSEE: Arnold, White & Durkee
; STREET: P.O. Box 4433
; CITY: Houston
; STATE: Texas
; COUNTRY: USA
; ZIP: 77210
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patentin Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/784,582
; FILING DATE: Concurrently Herewith
; CLASSIFICATION: 435
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/028,427
; FILING DATE: 15-OCT-1996
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 08/589,028
; FILING DATE: 19-JAN-1996
; ATTORNEY/AGENT INFORMATION:
; NAME: Highlander, Steven L.
; REGISTRATION NUMBER: 37,642
; REFERENCE/DOCKET NUMBER: OTSD:514
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 512/418-3000
; TELEFAX: 512/474-7577
; INFORMATION FOR SEQ ID NO: 73:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 360 amino acids
; TYPE: amino acid
; STRANDEDNESS:
; TOPOLOGY: linear
; US-08-784-582-73

Query Match          98.5%; Score 670; DB 3; Length 360;
Best Local Similarity 99.2%; Pred. No. 3.5e-71;
Matches 132; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 2 FFTPLSLRFDNAMLRAHRLHQLAFDTYQEFEEAYIRKQKYSFLQNPOTSLSSES IPT 61
    |||||||
DB 27 FFTPLSLRFDNAMLRAHRLHQLAFDTYQEFEEAYIRKQKYSFLQNPOTSLSSES IPT 86
    |||||||
QY 62 PSNRETOOKSNLELLRISLLSIQSWLEPVQFLRSVFANSILVYGASDSNYYDLKDLDEG 121
    |||||||
DB 87 PSNRETOOKSNLELLRISLLSIQSWLEPVQFLRSVFANSILVYGASDSNYYDLKDLDEG 146
    |||||||
QY 122 IOTLMGRLEDGSP 134
    |||||||
DB 147 IOTLMGRLEDGSP 159
    |||||||

RESULT 12
US-09-465-461-1
```

```
; Sequence 1, Application US/09465461
; Patent No. 6348444
; GENERAL INFORMATION:
; APPLICANT: CHAPPEL, Scott
; TITLE OF INVENTION: Human Growth Hormone to stimulate hematopoiesis and immune rec
; FILE REFERENCE: CHAPPEL-6.1
; CURRENT FILING DATE: 1999-12-17
; PRIOR APPLICATION NUMBER: 60/112,668
; PRIOR FILING DATE: 1998-12-17
; NUMBER OF SEQ ID NOS: 1
; SOFTWARE: Patentin version 3.1
; SEQ ID NO 1
; LENGTH: 191
; TYPE: PRT
; ORGANISM: homo sapiens
US-09-465-461-1
```

```
Query Match          97.6%; Score 664; DB 4; Length 191;
Best Local Similarity 98.5%; Pred. No. 7.1e-71;
Matches 131; Conservative 0; Mismatches 2; Indels 0; Gaps 0;
```

```
QY 2 FFTPLSLRFDNAMLRAHRLHQLAFDTYQEFEEAYIRKQKYSFLQNPOTSLSSES IPT 61
    |||||||
DB 1 FFTPLSLRFDNAMLRAHRLHQLAFDTYQEFEEAYIRKQKYSFLQNPOTSLSSES IPT 60
    |||||||
QY 62 PSNRETOOKSNLELLRISLLSIQSWLEPVQFLRSVFANSILVYGASDSNYYDLKDLDEG 121
    |||||||
DB 61 PSNRETOOKSNLELLRISLLSIQSWLEPVQFLRSVFANSILVYGASDSNYYDLKDLDEG 120
    |||||||
QY 122 IOTLMGRLEDGSP 134
    |||||||
DB 121 IOTLMGRLEDGSP 133
    |||||||

RESULT 13
US-08-187-756C-4
; Sequence 4, Application US/08187756C
; Patent No. 5597709
; GENERAL INFORMATION:
; APPLICANT: ROSEN, ET AL.
; TITLE OF INVENTION: Human Growth Hormone
; NUMBER OF SEQUENCES: 7
; CORRESPONDENCE ADDRESSES:
; ADDRESSEE: CARELLA, BYRNE, BAIN, GILFILLAN,
; ADDRESSEE: CECCHI, STEWART & OLSTEIN
; STREET: 6 BECKER FARM ROAD
; CITY: ROSELAND
; STATE: NEW JERSEY
; COUNTRY: USA
; ZIP: 07068
; COMPUTER READABLE FORM:
; MEDIUM TYPE: 3.5 INCH DISKETTE
; COMPUTER: IBM PS/2
; OPERATING SYSTEM: MS-DOS
; SOFTWARE: WORD PERFECT 5.1
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/187,756C
; FILING DATE: January 27, 1994
; CLASSIFICATION: 435
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER:
; FILING DATE:
; ATTORNEY/AGENT INFORMATION:
; NAME: FERRARO, GREGORY D.
; REGISTRATION NUMBER: 36,134
; REFERENCE/DOCKET NUMBER: 325800-55
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 201-994-1700
; TELEFAX: 201-994-1744
; INFORMATION FOR SEQ ID NO: 4:
```



SEQUENCE CHARACTERISTICS:  
LENGTH: 217 AMINO ACIDS  
TYPE: AMINO ACID  
STRANDEDNESS:  
TOPOLOGY: LINEAR  
MOLECULE TYPE: PROTEIN  
US-08-187-756C-4

Query Match 97.6%; Score 664; DB 1; Length 217;  
Best Local Similarity 98.5%; Pred. No. 8.6e-71;  
Matches 131; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 2 FTPTPLSRFLFDNAMLRAHRLHOLAFDTYQEFEEAYIPKEOKYSFLONPOTSLSPESIPT 61  
DB 27 FTPTPLSRFLFDNAMLRAHRLHOLAFDTYQEFEEAYIPKEOKYSFLONPOTSLSPESIPT 86  
QY 62 PSNREETOOKSNLELRISLLIQSWLEPVOFLRSVFANSIVYGASDSNVYDLKLEEG 121  
DB 87 PSNREETOOKSNLELRISLLIQSWLEPVOFLRSVFANSIVYGASDSNVYDLKLEEG 146  
QY 122 IOTLMGRLEDDGSP 134  
DB 147 IOTLMGRLEDDGSP 159

## RESULT 14

US-08-469-486-51  
Sequence 51, Application US/08469486  
Patent No. 5739281

## GENERAL INFORMATION:

APPLICANT: Thøgersen, Hans Christian  
APPLICANT: Holte, Thor Las  
APPLICANT: Elzerodt, Michael  
TITLE OF INVENTION: Improved method for the refolding of  
NUMBER OF SEQUENCES: 58  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Fish & Richardson  
STREET: 225 Franklin Street  
CITY: Boston  
STATE: Massachusetts  
COUNTRY: USA  
ZIP: 02110-2804

## COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: PatentIn Release #1.0, Version  
SOFTWARE: #1.25

## CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/469,486  
FILING DATE:

## CLASSIFICATION: 530

## PRIOR APPLICATION DATA:

APPLICATION NUMBER: 08/192,060  
FILING DATE: February 4, 1994

## ATTORNEY/AGENT INFORMATION:

NAME: Paul T. Clark

## REGISTRATION NUMBER: 30,162

## REFERENCE/DOCKET NUMBER: 06363/002001

## TELECOMMUNICATION INFORMATION:

TELEPHONE: 617 542 5070  
TELEFAX: 617 542 8906

## TELEX: 200154

## INFORMATION FOR SEQ ID NO: 51:

## SEQUENCE CHARACTERISTICS:

LENGTH: 217 amino acids  
TYPE: amino acid

## STRANDEDNESS:

TOPOLOGY: linear

## MOLECULE TYPE: protein

US-08-469-486-51

Query Match 97.6%; Score 664; DB 1; Length 217;  
Best Local Similarity 98.5%; Pred. No. 8.6e-71;  
Matches 131; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 2 FTPTPLSRFLFDNAMLRAHRLHOLAFDTYQEFEEAYIPKEOKYSFLONPOTSLSPESIPT 61  
DB 27 FTPTPLSRFLFDNAMLRAHRLHOLAFDTYQEFEEAYIPKEOKYSFLONPOTSLSPESIPT 86  
QY 62 PSNREETOOKSNLELRISLLIQSWLEPVOFLRSVFANSIVYGASDSNVYDLKLEEG 121  
DB 87 PSNREETOOKSNLELRISLLIQSWLEPVOFLRSVFANSIVYGASDSNVYDLKLEEG 146  
QY 122 IOTLMGRLEDDGSP 134  
DB 147 IOTLMGRLEDDGSP 159

## RESULT 15

US-08-469-658-51  
Sequence 51, Application US/08469658  
Patent No. 5917018

## GENERAL INFORMATION:

APPLICANT: Thøgersen, Hans Christian  
APPLICANT: Holte, Thor Las  
APPLICANT: Elzerodt, Michael  
TITLE OF INVENTION: IMPROVED METHOD FOR THE REFOLDING OF  
NUMBER OF SEQUENCES: 58  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Fish & Richardson P.C.  
STREET: 225 Franklin Street  
CITY: Boston  
STATE: Massachusetts  
COUNTRY: USA  
ZIP: 02110-2804

## COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: PatentIn Release #1.0, Version  
SOFTWARE: #1.25

## CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/469,658  
FILING DATE: June 5, 1995

## CLASSIFICATION: 530

## PRIOR APPLICATION DATA:

APPLICATION NUMBER: 08/192,060  
FILING DATE: February 4, 1994

## CLASSIFICATION: 530

## ATTORNEY/AGENT INFORMATION:

NAME: Paul T. Clark

## REGISTRATION NUMBER: 30,162

## REFERENCE/DOCKET NUMBER: 06363/002002

## TELECOMMUNICATION INFORMATION:

TELEPHONE: 617 542 5070  
TELEFAX: 617 542 8906

## TELEX: 200154

## INFORMATION FOR SEQ ID NO: 51:

## SEQUENCE CHARACTERISTICS:

LENGTH: 217 amino acids  
TYPE: amino acid

## STRANDEDNESS:

TOPOLOGY: linear

## MOLECULE TYPE: protein

US-08-469-658-51

Query Match 97.6%; Score 664; DB 2; Length 217;  
Best Local Similarity 98.5%; Pred. No. 8.6e-71;  
Matches 131; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

```
QY 2 FPIPLSRLEPDMAMLRHRLHQLAFDTYQEFEEAYIPKEOKYSFLQNPQTSLSFSES IPT 61
Db 27 FPIPLSRLEPDMASLRHRLHQLAFDTYQEFEEAYIPKEOKYSFLQNPQTSLSFSES IPT 86
QY 62 PSNREETOOKSNLELRLISLLIQSMLEPVQFLRSVFANSLSVYGASDSNVYDLKDLREG 121
Db 87 PSNREETOOKSNLELRLISLLIQSMLEPVQFLRSVFANSLSVYGASDSNVYDLKDLREG 146
QY 122 IQTLMGRLEDDGSP 134
Db 147 IQTLMGRLEDDGSP 159
```

Search completed: September 25, 2002, 09:56:40  
Job time: 159 sec

GenCore version 4.5  
Copyright (c) 1993 - 2000 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: September 25, 2002, 09:55:31 ; Search time 28.13 Seconds  
(without alignments)  
457.731 Million cell updates/sec

Title: US-09-819-094-24

Perfect score: 680

Sequence: 1 MEPRPLSRPLFDNMLRAHR.....LKDEEGIQTLGRLEDGSP 134

Scoring table:

BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 283138 seqs, 96089334 residues

Total number of hits satisfying chosen parameters: 283138

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database :

1: p1r1:\*  
2: p1r2:\*  
3: p1r3:\*  
4: p1r4:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

#### SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	670	98.5	217	1	STHU
2	645	94.9	217	2	somatotropin 1 pre
3	603	88.7	217	1	STHUV
4	570.5	83.9	256	1	somatotropin 2 pre
5	558	82.1	217	2	somatotropin 2 pre
6	550	80.9	212	2	chorionic somatoma
7	550	80.9	217	2	chorionic somatoma
8	549	80.7	217	2	chorionic somatoma
9	548	80.6	217	1	chorionamniotrocin
10	548	80.6	217	2	chorionamniotrocin
11	517	76.0	215	2	B32435
12	445	65.4	216	2	B49159
13	441	64.9	190	2	PN0140
14	440	64.7	190	2	JK0219
15	440	64.7	216	1	STPG
16	440	64.7	216	2	I46145
17	440	64.7	216	2	JC4632
18	439	64.6	216	1	STMS
19	438	64.4	216	2	A37782
20	437	64.3	216	1	STRT
21	436	64.1	190	1	A61584
22	434	63.8	190	2	JS0429
23	434	63.8	216	2	S49483
24	432	63.5	190	1	STHO
25	418	61.5	217	1	STBO
26	409	60.1	217	1	STSH
27	409	60.1	217	1	STGT
28	409	60.1	217	2	S32682
29	400	58.8	216	2	JC1514

30	397	58.4	191	2	A60625	somatotropin - gre
31	397	58.4	216	2	A60509	somatotropin precu
32	390	57.4	199	2	B32435	chorionamniotrocin -
33	382.5	56.2	216	2	S04929	somatotropin precu
34	343	50.4	190	2	S21750	somatotropin - Rus
35	339	49.9	195	2	I51250	somatotropin - bov
36	334	49.1	190	2	A56816	somatotropin - bul
37	325	47.8	215	2	I51188	somatotropin - bul
38	324	47.6	215	2	JS0037	somatotropin precu
39	290.5	42.7	183	2	A60623	somatotropin - blu
40	256	37.6	209	2	J70483	somatotropin I pre
41	241.5	35.5	163	2	JN0387	somatotropin - sel
42	235	34.6	139	2	S04353	somatotropin A - A
43	215	31.6	210	2	I50763	somatotropin - nob
44	215	31.6	210	2	S38351	somatotropin - sll
45	215	31.6	210	2	S21915	somatotropin - sll

#### ALIGNMENTS

##### RESULT 1

STHU

somatotropin 1 precursor [validated] - human

N:Alternate names: growth hormone 1; hGH-N; pituitary somatotropin

N:Contains: growth hormone 3K peptide; somatotropin 1, long form; somatotropin 1, sho

C:Species: Homo sapiens (man)

C>Date: 24-Apr-1984 #sequence-revision 10-Feb-1995 #text-change 08-Dec-2000

C:Accession: A93731; A32435; A93694; A94247; A90051; A93397; A93778; A91764; A90217;

Nucleic Acids Res. 9, 3719-3730, 1981

A:Title: Human growth hormone DNA sequence and mRNA structure: possible alternative s

A:Reference number: A93731; MUID:82014939

A:Accession: A93731

A:Molecule type: DNA

A:Residues: 1-217 <DEN>

A:Cross-references: GB:V00520

A>Note: The 20K short form somatotropin lacks residues 58-72 (32-46 in the active hor

R:Chen, E.Y., Liao, Y.C., Smith, D.H.; Barrera-Saldana, H.A.; Gellinas, R.E.; Seeburg,

Genomics 4, 479-497, 1989

A:Title: The human growth hormone locus: nucleotide sequence, biology, and evolution.

A:Reference number: A32435; MUID:89307277

A:Accession: A32435

A:Molecule type: DNA

A:Residues: 1-217 <CHE>

A:Cross-references: GB:J03071; NID:G183148; PIDN:AAA52549.1; PID:G183149

R:Roskam, W.; Rougeon, F.

Nucleic Acids Res. 7, 305-320, 1979

A:Title: Molecular cloning and nucleotide sequence of the human growth hormone struct

A:Reference number: A93694; MUID:80034477

A:Accession: A93694

A:Molecule type: mRNA

A:Residues: 1-217 <ROS>

A:Cross-references: GB:V00519

A>Note: 35-Pro was also found

R:Marfali, J.A.; Halliwell, R.A.; Baxter, J.D.; Goodman, H.M.

Science 205, 602-607, 1979

A:Title: Human growth hormone: complementary DNA cloning and expression in bacteria.

A:Reference number: A94247; MUID:79203293

A:Accession: A94247

A:Molecule type: mRNA

A:Residues: 1-217 <MAR>

R:Li, C.H.; Dixon, J.S.; Liu, W.K.

Arch. Biochem. Biophys. 133, 70-91, 1969

A:Title: Human pituitary growth hormone. XIX. The primary structure of the hormone.

A:Reference number: A90048; MUID:69289202

A:Contents: annotation

R:Li, C.H.; Dixon, J.S.

Arch. Biochem. Biophys. 146, 233-236, 1971

A:Title: Human pituitary growth hormone. XXXII. The primary structure of the hormone:

A:Reference number: A90051; MUID:72143935

A:Accession: A90051

A:Molecule type: protein

A:Residues: 27-94;96-217 <LIC>  
R:Nall, H.D.  
Nature New Biol. 230, 90-91, 1971  
A:Title: Revised primary structure for human growth hormone.  
A:Reference number: A93397; MUID:71139765  
A:Accession: A93397  
A:Molecule type: protein  
A:Residues: 27-51 <MIA>  
R:Nall, H.D.; Hogan, M.L.; Sauer, R.; Rosenblum, I.Y.; Greenwood, F.C.  
Proc. Natl. Acad. Sci. U.S.A. 68, 866-869, 1971  
A:Title: Sequences of pituitary and placental lactogenic and growth hormones: evolution  
A:Reference number: A93778; MUID:71153968  
A:Accession: A93778  
A:Molecule type: protein  
A:Residues: 119-120;157-159 <MI2>  
R:Nall, H.D.  
In Prolactin and Carcinogenesis, Proc. Fourth Tenovus Workshop Prolactin, Griffiths, K.,  
A:Title: The chemistry of the human lactogenic hormones.  
A:Reference number: A94427  
A:Contents: annotation; somatotropin revision  
R:Bewley, T.A.; Dixon, J.S.; Li, C.H.  
Int. J. Pept. Protein Res. 4, 281-287, 1972  
A:Title: Sequence comparison of human pituitary growth hormone, human chorionic somatom  
A:Reference number: A91764; MUID:73092028  
A:Accession: A91764  
A:Molecule type: protein  
A:Residues: 27-217 <BEM>  
R:Lewis, U.J.; Bonevald, L.F.; Lewis, L.J.  
Biochem. Biophys. Res. Commun. 92, 511-516, 1980  
A:Title: The 20,000-dalton variant of human growth hormone: location of the amino acid c  
A:Reference number: A90217; MUID:80130196  
A:Contents: somatotropin, 20K short variant  
A:Accession: A90217  
A:Molecule type: protein  
A:Residues: 46-57;73-80 <LEM>  
R:Chapman, G.E.; Rogers, K.M.; Brittain, T.; Bradshaw, R.A.; Bates, O.J.; Turner, C.; Ca  
J. Biol. Chem. 255, 2395-2401, 1981  
A:Title: The 20,000 molecular weight variant of human growth hormone. Preparation and se  
A:Reference number: A92311; MUID:81117361  
A:Contents: somatotropin, 20K short variant  
A:Accession: A92311  
A:Molecule type: protein  
A:Residues: 27-57;73-79 <CHA>  
R:Singh, R.N.P.; Seavey, B.K.; Lewis, L.J.; Lewis, U.J.  
J. Protein Chem. 2, 425-436, 1983  
A:Title: Human growth hormone peptide 1-43: isolation from pituitary glands.  
A:Reference number: A61466  
A:Accession: A61466  
A:Molecule type: protein  
A:Residues: 27-69 <SIN>  
A>Note: growth hormone 5K peptide has insulin potentiating activity; its physiological f  
R:Robson, V.M.J.; Rae, I.D.; NG, F.  
Biol. Chem. Hoppe-Seyler 371, 423-431, 1990  
A:Title: Identification of the aspartamide structure in a previously-reported peptide.  
A:Reference number: S09685; MUID:90334745  
A:Accession: S09685  
A:Molecule type: protein  
A:Residues: 27-34;71-73;6-47 <ROB>  
R:de Vos, A.M.; Uitsch, M.; Kossiakoff, A.A.  
Science 255, 306-312, 1992  
A:Title: Human growth hormone and extracellular domain of its receptor: crystal structur  
A:Reference number: A41728; MUID:92196577  
A:Contents: annotation; X-ray crystallography, 2.8 angstroms  
A>Note: the structure of the complex with growth hormone receptor is described  
R:Gray, G.L.; Balridge, J.S.; McKeown, K.S.; Heyneker, H.L.; Chang, C.N.  
Gene 39, 247-254, 1985  
A:Title: Periplasmic production of correctly processed human growth hormone in Escherich  
A:Reference number: I41126; MUID:86137393  
A:Accession: I84549  
A:Molecule type: protein  
A:Status: preliminary; translated from GB/EMBL/DBJ  
A:Molecule type: mRNA  
A:Residues: 1-26 <RES>  
A:Cross-references: GB:M14398; MTD:9183158; PIDN:AAA52554.1; PID:9183159

C:Comment: The gene for this hormone is transcribed only in somatotrophic cells of th  
C:Comment: About 90% of somatotropin is the 22K long form.  
C:Genetics:  
A:Gene: GDB:GH1  
A:Cross-references: GDB:119982; OMIM:139250  
A:Map position: 17q23.1-17q23.3  
A:Introns: 4/1; 57/3; 97/3; 152/3  
C:Superfamily: prolactin  
C:Keywords: alternative splicing; hormone; pituitary  
F:1-26/Domain: signal sequence #status predicted <SIG>  
F:27-217/Product: somatotropin 1, long form #status experimental <SOL>  
F:27-69/Product: growth hormone 5K peptide #status experimental <SKP>  
F:27-57/73-217/Product: somatotropin 1, short form #status experimental <SOS>  
F:79-191,208-215/Disulfide bonds: #status experimental

Query Match 98.5%; Score 670; DB 1; Length 217;  
Best Local Similarity 99.2%; Pred. No. 5,3e-58;  
Matches 132; Conservative 0; Mismatches 1; Indels 0; Gaps 0;  
QY 2 FPTPLSRFLDNLMLRAHRLHQLAFTDYQEFEEAYIPKQKYSFLONPQTSLSFSES IPT 61  
DB 27 FPTPLSRFLDNLMLRAHRLHQLAFTDYQEFEEAYIPKQKYSFLONPQTSLSFSES IPT 86  
QY 62 PSNRETPQKSNELRLISLLIQSWLEPYQFLRSVANSVLYGASDSNVYDLKDEEG 121  
DB 87 PSNRETPQKSNELRLISLLIQSWLEPYQFLRSVANSVLYGASDSNVYDLKDEEG 146  
QY 122 IQTLMLGRLEDGSP 134  
DB 147 IQTLMLGRLEDGSP 159

RESULT 2  
167410  
somatotropin - rhesus macaque  
N:Alternate names: growth hormone  
C:Species: Macaca mulatta (rhesus macaque)  
C>Date: 31-May-1996 #sequence;revision 31-May-1996 #text\_change 16-Jul-1999  
C:Accession: 167410; A05094  
R:Golov, T.G.; Durning, M.; Fisher, J.M.; Fowler, P.D.  
Endocrinology 133, 1744-1752, 1993  
A:Title: Cloning of four growth hormone/chorionic somatomammotropin-related complemen  
A:Reference number: 153267; MUID:94008724  
A:Accession: 167410  
A:Status: translated from GB/EMBL/DBJ  
A:Molecule type: mRNA  
A:Residues: 1-217 <RES>  
A:Cross-references: GB:L16556; MTD:9293114; PIDN:AAA18842.1; PID:9293115  
R:Li, C.H.; Chung, D.; Lahm, H.W.; Steind, S.  
Arch. Biochem. Biophys. 245, 287-291, 1986  
A:Title: The primary structure of monkey pituitary growth hormone.  
A:Reference number: A05094; MUID:86129460  
A:Accession: A05094  
A:Molecule type: protein  
A:Residues: 27-99; 'Q',101-178, 'D',180-217 <LIC>  
A>Note: the monkey species is not identified in the reference  
R:Reber, M.S.  
Science 125, 883-884, 1957  
A:Title: Preparation of growth hormone from pituitaries of man and monkey.  
A:Reference number: A44774  
A:Contents: annotation; identification of source organism  
C:Superfamily: prolactin

Query Match 94.9%; Score 645; DB 2; Length 217;  
Best Local Similarity 97.0%; Pred. No. 1.3e-55;  
Matches 138; Conservative 1; Mismatches 3; Indels 0; Gaps 0;  
QY 2 FPTPLSRFLDNLMLRAHRLHQLAFTDYQEFEEAYIPKQKYSFLONPQTSLSFSES IPT 61  
DB 27 FPTPLSRFLDNLMLRAHRLHQLAFTDYQEFEEAYIPKQKYSFLONPQTSLSFSES IPT 86

OY	62	PSNFEETQKSNMELRISLILQSLEPVOPLRVSPFNSSLVYGASNNVYDLKLKEEG	121
DB	87	PSNFEETQKSNMELRISLILQSLEPVOPLRVSPFNSSLVYGASNNVYDLKLKEEG	146
OY	122	IQTLMGRLEDGS	133
DB	147	IQTLMGRLEDGS	158

Query Match	88..7%	Score 603;	DB 1;	Length 217;
RESULT	3			
STRUV				
Somatotropin 2 precursor - human				
N:Alternate names: growth hormone 2; growth hormone variant; hGH-V; placental somatotrop				
N:Contains: somatotropin 2, long splice form; somatotropin 2, short splice form				
C:Species: Homo sapiens (man)				
C:date: 17-Dec-1982 #sequence_revision 10-Feb-1995 #text_change 21-Jul-2000				
G:Accession: D32435; B28072; A01511; I52104; A60711				
R:Chen, E.Y.; Liao, Y.C.; Smith, D.H.; Barrera-Saldana, H.A.; Gellinas, R.E.; Seeburg, P.				
Genomics 4, 479-497, 1989				
A:title: The human growth hormone locus; nucleotide sequence, biology, and evolution.				
A:Reference number: A32435; MUID:89307277				
A:Accession: D32435				
A:Molecule type: DNA				
A:Residues: 1-217 <CHE>				
A:Cross-references: GB:J03071; NID:g183148; PIDN:AAA52552.1; PID:g183152				
J:Cooke, N.E.; Ray, J.; Emery, J.G.; Liebhaver, S.A.				
J: Biol. Chem. 263, 9001-9006, 1988				
A:title: Two distinct species of human growth hormone-variant mRNA in the human placenta				
A:Reference number: A92725; MUID:88243769				
A:Accession: B28072				
A:Molecule type: mRNA				
A:Residues: 1-217 <COO>				
R:Seeburg, P.H.				
DNA 1, 239-249, 1982				
A:title: The human growth hormone gene family: nucleotide sequences show recent divergence				
A:Reference number: A01511; MUID:83182010				
A:Accession: A01511				
A:Molecule type: DNA				
A:Residues: 1-34, 'P', 36-217 <SEE>				
R:Igout, A.; Scippo, M.L.; Frankenne, F.; Hennén, G.				
Arch. Int. Physiol. Biochim. 96, 63-67, 1988				
A:title: Cloning and nucleotide sequence of placental hGH-V cDNA.				
A:Reference number: I52104; MUID:89024984				
A:Accession: I52104				
A>Status: preliminary; translated from GB/EMBL/DDBU				
A:Molecule type: mRNA				
A:Residues: 1-217 <IGO>				
A:Cross-references: MB:M38451; NID:g183179; PIDN:AAA35891.1; PID:g183180				
R:Frankenne, F.; Scippo, M.L.; Van Beeumen, J.; Igout, A.; Hennén, G.				
J: Clin. Endocrinol. Metab. 71, 15-18, 1990				
A:title: Identification of placental human growth hormone as the growth hormone-V gene e				
A:Reference number: A60711; MUID:90317018				
A:Accession: A60711				
A:Molecule type: Protein				
A:Residues: 27-44;46-57 <FRA>				
A:Experimental source: tissue placenta				
A>Note: partial glycosylation was demonstrated by lectin binding				
C:Comment: This gene is expressed by the placenta.				
C:Genetics:				
A:Gene: GDB:GH2				
A:Cross-references: GDB:119983; OMIM:139240				
A:Map position: 17q22-17q24				
A:Introns: 4/1; 57/3; 97/3; 152/3				
C:Superfamily: prolactin				
C:keywords: alternative splicing; glycoprotein; hormone; placenta				
F:1-56/Domains: signal sequence #status predicted <SIG>				
F:27-57/Product: somatotropin 2, long splice form #status predicted <SOI>				
F:27-57,73-217/Product: somatotropin 2, short splice form #status predicted <SOS>				
F:79-191,208-215/Disulfide bonds: #status predicted				
F:166/Binding site: carboxylate (Asn) (covalent) #status predicted				

```

Query Match          83.9%; Score 570.5; DB 1: Length 256;
Best Local Similarity 88.1%; Pred. No. 3.4e-48;
Matches 118; Conservative 4; Mismatches 11; Indels 1; Gaps 1;

QY 2 FPTPLISRLFDNAMLRAHRLHQIADFDTYOEEPEEAYIPKEXKYSFLONPQTSLSFSSSIFT 61
      |||||.....|||:|||||.....|
Db 27 FPTPLISRLFDNAMLRAHRLHQIADFDTYOEEPEEAYIIKEOKYSFLONPQTSLCFSESIFT 86
      |||||.....|||:|||||.....|

QY 62 PSNNEETOOKSNLELIRISILLIQSMLEPYOFLSVFANSIVYGASDSNVYDLKLDEEG 121
      |||||.....|||:|||||.....|
Db 87 PSNRVKTQOKSNLELIRISILLIQSMLEPYOLLSRVFANSIVYGASDSNVYRHLKLEEG 146
      |||||.....|||:|||||.....|

QY 122 IOTLMGRLEDGSP 134
      |||||.....|
Db 147 IOTLMWRLEDGSP 159
      |||||.....|

RESULT 4
STHUVZ
somatotropin 2 precursor, splice form 2 - human
N.Alternate names: growth hormone variant-2; placental somatotropin form 2
C.Species: Homo sapiens (man)
C.Date: 30-Sep-1989 #sequence_revision 10-Feb-1995 #text_change 02-Sep-1997
C.Accession: A28072
J.COoke, N.E.; Ray, J.J.; Emery, J.G.; Liebhaver, S.A.
J. Biol. Chem. 263, 9001-9006, 1988
A.Title: Two distinct species of human growth hormone-variant mRNA in the human placenta
A.Reference number: A92725; MUID:88243769
A.Accession: A28072
A.Molecule type: mRNA
A.Residues: 1-256 <COO>
A.Note: an alternative splice junction for intron 4 is used
C.Genetics:
A.Gene: GDB:GH2
A.Cross-references: GDB:119983; OMIM:139240
A.Map position: 17q22-17q24
A.Introns: 4/1: 57/3; 97/3; 152/3
C.Superfamily: prolactin
C.Keywords: alternative splicing; hormone; placenta
F:1-26/Domain: signal sequence #status predicted<SIG>
F:27-256/Product: somatotropin 2 splice form 2 #status predicted<MAT>

Query Match          83.9%; Score 570.5; DB 1: Length 256;
Best Local Similarity 88.1%; Pred. No. 3.4e-48;
Matches 118; Conservative 4; Mismatches 11; Indels 1; Gaps 1;

QY 2 FPTPLISRLFDNAMLRAHRLHQIADFDTYOEEPEEAYIPKEXKYSFLONPQTSLSFSSSIFT 61
      |||||.....|||:|||||.....|
Db 27 FPTPLISRLFDNAMLRAHRLHQIADFDTYOEEPEEAYIIKEOKYSFLONPQTSLCFSESIFT 86
      |||||.....|||:|||||.....|

QY 62 PSNNEETOOKSNLELIRISILLIQSMLEPYOFLSVFANSIVYGASDSNVYDLKLDEEG 121
      |||||.....|||:|||||.....|
Db 87 PSNRVKTQOKSNLELIRISILLIQSMLEPYOLLSRVFANSIVYGASDSNVYRHLKLEEG 146
      |||||.....|||:|||||.....|

QY 122 IOTLMGRLEDGSP 134
      |||||.....|
Db 147 IOTLMWRLEDGSP 159
      |||||.....|

RESULT 5
167409
Chorionic somatomammotropin-3 - rhesus macaque
C.Species: Macaca mulatta (rhesus macaque)
C.Date: 31-May-1996 #sequence_revision 31-May-1996 #text_change 16-Jul-1999
C.Accession: 167409
R.Golos, T.G.; Durning, M.; Fisher, J.M.; Fowler, P.D.
Endocrinology 133, 1744-1752, 1993
A>Title: Cloning of four growth hormone/chorionic somatomammotropin-related complemen
A.Reference number: I53267; MUID:94008724
A.Accession: 167409
A.Status: preliminary; translated from GB/EMBL/DDBJ
A.Molecule type: mRNA
A.Residues: 1-217 <RES>
```



A: Molecule type: mRNA  
A: Residues: 1-217 <GOO>  
R: Tanaka, M.; Masuda, N.; Watahiki, M.; Yamakawa, M.; Shimizu, K.; Nagai, J.; Nakashima, Y. *Biochem. Int.* 16, 287-292, 1988  
A: Title: cDNA cloning of human chorionic somatomammotropin-1 mRNA whose transcription was regulated by prolactin  
A: Reference number: I52342; MUID:88209096  
A: Accession: I52342  
A: Status: translated from GB/EMBL/DDBT  
A: Molecule type: mRNA  
A: Residues: 1-3 <TRAN>  
A: Cross-references: GB:M35419; NID:q506822  
R: Sherwood, L.M.; Bursstein, Y.; Schechter, I. *Proc. Natl. Acad. Sci. U.S.A.* 76, 3819-3823, 1979  
A: Title: Primary structure of the NH-2-terminal extra piece of the precursor to human placental lactogen  
A: Reference number: A93833; MUID:80034970  
A: Accession: A93833  
A: Molecule type: protein  
A: Residues: 1,3-26 <SHE>  
A: Experimental source: Placenta  
R: Shine, J.; Seeburg, P.H.; Martial, J.A.; Baxter, J.D.; Goodman, H.M. *Nature* 270, 494-499, 1977  
A: Title: Construction and analysis of recombinant DNA for human chorionic somatomammotropin  
A: Reference number: A93192; MUID:78071761  
A: Accession: A93192  
A: Molecule type: DNA  
A: Residues: 50-217 <SHI>  
A: Experimental source: placenta  
R: Li, C.H.; Dixon, J.S.; Chung, D. *Arch. Biochem. Biophys.* 155, 95-110, 1973  
A: Title: Amino acid sequence of human chorionic somatomammotropin.  
A: Reference number: A90054; MUID:73201971  
A: Accession: A90054  
A: Molecule type: protein  
A: Residues: 27-217 <LIC>  
A: Experimental source: placenta  
R: Niall, H.D. *In* Prolactin and Carcinogenesis, Proc. Fourth Tenovus Workshop Prolactin, Griffiths, K., ed. Plenum Press, New York, 1978, pp. 1-10  
A: Title: The chemistry of the human lactogenic hormones.  
A: Reference number: A94427  
A: Accession: A94427  
A: Molecule type: protein  
A: Residues: 27-217 <NIA>  
A: Experimental source: placenta  
R: Nic A Bhaird, N.; Tipton, K.F. *Biochem. Soc. Trans.* 19, 205, 1991  
A: Title: Catechol-O-methyltransferase from human placenta: purification and some properties  
A: Reference number: A61283; MUID:91244006  
A: Accession: A61283  
A: Molecule type: protein  
A: Residues: 27-46 <NIC>  
A: Note: chorionmammotropin apparently copurified with placental catechol-O-methyltransferase  
R: Sherwood, L.M.; Handwerker, S.; McLaurin, W.D.; Lanner, M. *Nature New Biol.* 233, 59-61, 1971  
A: Title: Amino-acid sequence of human placental lactogen.  
A: Reference number: A93401; MUID:72016313  
A: Contents: annotation  
R: Sherwood, L.M.; Handwerker, S.; McLaurin, W.D.; Lanner, M. *Nature New Biol.* 235, 64, 1972  
A: Reference number: A93405  
A: Contents: annotation  
R: Schneider, A.B.; Kowalski, K.; Russell, J.; Sherwood, L.M. *J. Biol. Chem.* 254, 3782-3787, 1979  
A: Title: Identification of the interchain disulfide bonds of dimeric human placental lactogen  
A: Reference number: A92251; MUID:79175081  
A: Contents: annotation; dimeric disulfide bonds  
R: Selby, M.J.; Bata, A.; Baxter, J.D.; Bell, G.I.; Eberhardt, N.L. *J. Biol. Chem.* 259, 13131-13138, 1984  
A: Title: Analysis of a major human chorionic somatomammotropin gene. Evidence for two functional alleles  
A: Reference number: I55229; MUID:85030426  
A: Accession: I55229  
A: Status: translated from GB/EMBL/DDBT  
A: Molecule type: DNA  
A: Residues: 1-217 <RES>

A:Cross-references: GB:R02401; NID:g181120; PID:AAA5215.1; PID:g181121  
R:Seeburg, P.H.; Shine, J.; Martial, J.A.; Ullrich, A.; Goodman, H.  
Trans. Assoc. Am. Physicians 90, 109-116, 1977  
A:Title: Nucleotide sequence of a human gene coding for a polypeptide hormone.  
A:Reference number: 159658; MUID:78160787  
A:Accession: 159658  
A:Status: translated from GB/EMBL/DBD  
A:Status: translated from GB/EMBL/DBD  
A:Molecule type: mRNA  
A:Residues: 160-217 <RE2>  
A:Cross-references: GB:M5118; NID:g181124; PID:AAA5721.1; PID:g181125  
C:Genetics:  
A:Gene: GDB:CSH1  
A:Cross-references: GDB:119084; OMTM:150200  
A:Map position: 17q22-17q24  
A:Introns: 4/1; 57/3; 97/3; 152/3  
C:Superfamily: prolactin  
C:Keywords: hormone; Placenta  
F:1-26/Domains: signal sequence #status experimental <SIG>  
F:27-217/Product: chorionmotropin A #status experimental <MAT>  
F:79-191/Disulfide bonds: #status experimental  
F:208-215/Disulfide bonds: (1n monomeric form) #status experimental  
F:208-215/Disulfide bonds: Interchain (to 215 in dimeric form) #status experimental  
F:215/Dsulfide bonds: Interchain (to 208 in dimeric form) #status experimental

Query Match	80.6%	Score 548	DB 1:	Length 217
Best Local Similarity	82.3%	Pred. No. 4,3e-46		
Matches 107; Conservative	11; Mismatches 12; Indels 0; Gaps 0;			
QY	4	TIPLSRFENALRAHRLHQLAFDYQEEFEERYIPKEQKYSFLQNPQTSLSFSESIPPS	63	
		:     :     :     :     :     :     :     :     :     :		
DB	29	TYPLSLPFPHALQNHRAQLAIDRYQEEFEERYIPKDKQISFLHNSQFSFCSDSDIPPS	88	
QY	64	NNEETQOKSNLELLRISLLLIQSWEPEVQEFESVFANSLVGCASDSNNYDLIKLDEGIC	123	
		:     :     :     :     :     :     :     :     :		
DB	89	NNEETQOKSNLELLRISLLLIQSWEPEVAFILSMFANNLVYDTSDDYHLLKDLDEGIC	148	
QY	124	TIMGRLDEGS	133	
DB	149	TIMGRLDEGS	158	

RESULT 10  
E32435  
Chorionomamotropin B precursor - human  
N:Alternate names: chorionic somatomamotropin 2  
C:Species: Homo sapiens (man)  
C:Date: 29-Dec-1989 #sequence\_revision 29-Dec-1989 #text\_change 16-Jul-1999  
C:Accession: E32435  
R:Chen, E.Y.; Liao, Y.C.; Smith, D.H.; Barrera-Saldana, H.A.; Gellinas, R.E.; Seeburg,  
Genomics 4, 479-497, 1989  
A:Title: The human growth hormone locus: nucleotide sequence, biology, and evolution.  
A:Reference number: A52435; MUID:89307277  
A:Accession: E32435  
A:Status: preliminary  
A:Molecule type: DNA  
A:Residues: 1-217 <CHS>  
A:Cross-references: GB:J03071; NID:g183148; P1DN:AAA5253.1; P1D:g183153  
C:Genetics:  
A:Gene: GDB:CSH2  
A:Cross-references: GDB:119813; OMTM:118820  
A:Map position: 17q22-17q24  
C:Superfamily: prolactin

	Query Match	80.6%	Pred. No.	548	DB 2:	Length	217;			
	Best Local Similarity	82.3%	Pred. No.	4.3e-46;						
	Matches	107;	Conservative	11;	Mismatches	12;	Indels	0;	Gaps	0;
Qy	4	TTPLSLFDNMALRAHRLHQLAFTDYQEEFVAYIPKEQKSYSLNPQPSLSFSISPPS	63							
Dd	29	TVPLSLDFPHAMQLAHRAHQLADIDYQEEEFYIKPKDQSYSLNHSQSFCSFSDIIPPS	88							

QY 64 NREETOQKSNLELLRLISLLIQSWLEPVQFLRSVFANSLVYGASDSNVYDLKDLDEEG 123  
 Db 89 NMEETOQKSNLELLRLISLLIESMPEVPLRSFMFANNLVYDTSDSDYHLKDLDEEG 148  
 QY 124 TLMGRLEDS 133  
 Db 149 TLMGRLEDS 158

## RESULT 11

A26449  
 choriomamotropin precursor (allele hcs-3) - human  
 N:Alternate names: growth hormone  
 C:Species: Homo sapiens (man)  
 C>Date: 30-Jun-1988 #sequence\_revision 30-Jun-1988 #text\_change 28-Jul-1995  
 C:Accession: A26449  
 R:Hirt, H.; Kimmelman, J.; Birnbaum, M.J.; Chen, E.Y.; Seeburg, P.H.; Eberhardt, N.L.; Be  
 DNA 6, 59-70, 1987  
 A>Title: The human growth hormone gene locus: structure, evolution, and allelic variation  
 A:Reference number: A26449; MUID:87161235  
 A:Accession: A26449  
 A:Molecule type: DNA  
 A:Residues: 1-215 <HIR>  
 C:Superfamily: prolactin  
 F:1-26/Domain: signal sequence #status predicted <SIG>  
 F:27-215/Product: choriomamotropin, hcs-3 allele #status predicted <MAT>

Query Match 76.0%; Score 517; DB 2; Length 215;  
 Best Local Similarity 80.0%; Pred. No. 4.5e-43;  
 Matches 104; Conservative 12; Mismatches 12; Indels 2; Gaps 2;

QY 4 TTPSLSLFPMAMLRHRLHQLAFDYYQFEFEAYIRKQKYSFLQNPOTSLSFSES IPT 63  
 Db 29 TPLSLFLPMAMLRHRLHQLAFDYYQFEFEAYIRKQKYSFLHDSQTSFCFSDS IPTPS 88  
 QY 64 NREETOQKSNLELLRLISLLIQSWLEPVQFLRSVFANSLVYGASDSNVYDLKDLDEEG 123  
 Db 89 NMEETOQKSNLELLRLISLLIESMPEVPLRSFMFANNLVYDTSDSDYHLKDLDEEG 146  
 QY 124 TLMGRLEDS 133  
 Db 147 TLMGRLEDS 156

## RESULT 12

B49159  
 somatotropin - golden hamster  
 N:Alternate names: growth hormone  
 C:Species: Mesocricetus auratus (golden hamster)  
 C>Date: 19-Dec-1993 #sequence\_revision 18-Nov-1994 #text\_change 21-Jul-2000  
 C:Accession: B49159  
 R:Southard, J.N.; Sanchez-Jimenez, F.; Campbell, G.T.; Talamantes, F.  
 Endocrinology 129, 2965-2971, 1991  
 A>Title: Sequence and expression of hamster prolactin and growth hormone messenger RNAs  
 A:Reference number: A49159; MUID:92063850  
 A:Accession: B49159  
 A:Status: preliminary  
 A:Molecule type: mRNA  
 A:Residues: 1-216 <SDU>  
 A:Cross-references: GB:S66299; NID:9239355; PIDN:AAB20368.1; PID:9239356  
 A>Note: sequence extracted from NCBI backbone (NCBIN:66299, NCBIR:66300)  
 C:Superfamily: prolactin

Query Match 65.4%; Score 445; DB 2; Length 216;  
 Best Local Similarity 66.9%; Pred. No. 4.9e-36;  
 Matches 89; Conservative 17; Mismatches 25; Indels 2; Gaps 2;

QY 2 FPTPLSLFPMAMLRHRLHQLAFDYYQFEFEAYIRKQKYSFLQNPOTSLSFSES IPT 61  
 Db 27 FPMPLSLSLFPMAMLRHRLHQLAFDYYQFEFEAYIRKQKYSFLQNPOTSLSFSES IPT 85  
 QY 62 PSNREETOQKSNLELLRLISLLIQSWLEPVQFLRSVFANSLVYGASDSNVYDLKDLDEEG 121

Db 86 PTGKEAQAQRSDMELLRLISLLIQSWLGPVQFLRSVFANSLVYGASDSNVYDLKDLDEEG 144  
 QY 122 IOTLMGRLEDS 134  
 Db 145 IOTLMGRLEDS 157

## RESULT 13

PN0140  
 somatotropin - sei whale  
 N:Alternate names: growth hormone  
 C:Species: Balenoptera borealis (sei whale)  
 C>Date: 07-May-1993 #sequence\_revision 07-May-1993 #text\_change 07-May-1999  
 C:Accession: PN0140  
 R:Yudaev, N.A.; Pankov, Y.A.; Bulatov, A.A.; Osipova, T.A.  
 Biokhimiya 47, 1059-1069, 1982  
 A>Title: Amino acid sequence of sei whale somatotropin.  
 A:Reference number: PN0140; MUID:8300569  
 A:Accession: PN0140  
 A:Molecule type: protein  
 A:Residues: 1-190 <YUD>  
 A>Note: article in Russian with English abstract  
 C:Superfamily: prolactin  
 C:Keywords: growth factor; hormone  
 F:52-163,180-188/Disulfide bonds: #status predicted

Query Match 64.9%; Score 441; DB 2; Length 190;  
 Best Local Similarity 66.9%; Pred. No. 1e-35;  
 Matches 89; Conservative 17; Mismatches 25; Indels 2; Gaps 2;

QY 2 FPTPLSLFPMAMLRHRLHQLAFDYYQFEFEAYIRKQKYSFLQNPOTSLSFSES IPT 61  
 Db 1 FPMPLSLSLFPMAMLRHRLHQLAFDYYQFEFEAYIRKQKYSFLQNPOTSLSFSES IPT 59  
 QY 62 PSNREETOQKSNLELLRLISLLIQSWLEPVQFLRSVFANSLVYGASDSNVYDLKDLDEEG 121  
 Db 60 PANKDEAQRSDMELLRLISLLIQSWLGPVQFLRSVFANSLVYGASDSNVYDLKDLDEEG 118  
 QY 122 IOTLMGRLEDS 134  
 Db 119 IOTLMGRLEDS 131

## RESULT 14

JK0219  
 somatotropin - African elephant  
 N:Alternate names: growth hormone  
 C:Species: Loxodonta africana (African elephant)  
 C>Date: 03-Aug-1992 #sequence\_revision 03-Aug-1992 #text\_change 15-Oct-1996  
 C:Accession: JK0219  
 R:Humes, J.D.; Miedel, M.C.; Li, C.H.; Pan, Y.C.E.  
 Int. J. Pept. Protein Res. 33, 368-372, 1989  
 A>Title: Primary structure of elephant growth hormone.  
 A:Reference number: JK0219  
 A:Accession: JK0219  
 A:Molecule type: protein  
 A:Residues: 1-190 <HUL>  
 A:Experimental source: pituitary gland  
 C:Superfamily: prolactin  
 F:1-190/Product: somatotropin #status experimental <MAT>

Query Match 64.7%; Score 440; DB 2; Length 190;  
 Best Local Similarity 66.9%; Pred. No. 1.3e-35;  
 Matches 89; Conservative 16; Mismatches 26; Indels 2; Gaps 2;

QY 2 FPTPLSLFPMAMLRHRLHQLAFDYYQFEFEAYIRKQKYSFLQNPOTSLSFSES IPT 61  
 Db 1 FPMPLSLSLFPMAMLRHRLHQLAFDYYQFEFEAYIRKQKYSFLQNPOTSLSFSES IPT 59  
 QY 62 PSNREETOQKSNLELLRLISLLIQSWLEPVQFLRSVFANSLVYGASDSNVYDLKDLDEEG 121



```

:  ::|||::||| ||||| ||||| ||||| |||
Db 60 PTGDEAQQRSVDVLLRFSLLIQSMGVPQFLSRVFTNSLVFGTSD-RVYEKIKDLEEG 118
OY 122 IOTLMGRLEDGSP 134
|| || |||||
Db 119 IQALMRELEDGSP 131

```

## RESULT 15

STPG

somatotropin precursor - pig

N:Alternate names: growth hormone

C:Species: Sus scrofa domestica (domestic pig)

C:Date: 30-Jun-1992 #sequence\_revision 30-Jun-1992 #text\_change 18-Jun-1999

C:Accession: JMW0015; S09015; I46584; I46584; PC1063; A01516; A94594

R:Vize, P.D.; Wells, J.R.E.

Gene 55, 339-344, 1987

A:Title: Isolation and characterization of the porcine growth hormone gene.

A:Reference number: JMW0015; MUID:88030700

A:Accession: JMW0015

A:Molecule type: DNA

A:Residues: 1-216 &lt;VIZ&gt;

A:Cross-references: GB:M17704; NID:g164475; PIDN:AAA31044.1; PID:g164476

R:Kato, Y.; Shimokawa, N.; Kato, T.; Hirai, T.; Yoshitama, K.; Kawai, H.; Hattori, M.A.;

Biochim. Biophys. Acta 1048, 290-293, 1990

A:Title: Porcine growth hormone: molecular cloning of cDNA and expression in bacterial E

A:Reference number: S09015; MUID:90212663

A:Accession: S09015

A:Molecule type: mRNA

A:Residues: 1-216 &lt;KAT&gt;

A:Cross-references: GB:X53325; NID:g288361; PIDN:CAA37411.1; PID:g288362

R:Seeburg, P.H.; Stas, S.; Adelman, J.P.; de Boer, H.A.; Hayflick, J.; Jhurani, P.; Goed

DNA 2, 37-45, 1983

A:Title: Efficient bacterial expression of bovine and porcine growth hormones.

A:Reference number: I45898; MUID:83209123

A:Accession: I4584

A:Molecule type: mRNA

A&gt;Status: preliminary; translated from GB/EMBL/DBJ

A:Residues: 7-8, 'V', '10-21, 'Q', '23-216 &lt;SEE&gt;

A:Cross-references: GB:M27326; NID:g164477; PIDN:AAA31045.1; PID:g164478

R:Su, T.

Gene 69, 81-89, 1988

A:Title: A multisite-directed mutagenesis using T7 DNA polymerase: application for recon

A:Reference number: I46585; MUID:89137997

A:Accession: I46585

A&gt;Status: preliminary; translated from GB/EMBL/DBJ

A:Molecule type: mRNA

A:Residues: 1-8, 'V', '10-21, 'Q', '23-42 &lt;SU&gt;

A:Cross-references: GB:M22761; NID:g164479; PIDN:AAA31046.1; PID:g164480

R:Yang, Q.; Zhu, B.L.; Zhou, S.W.; Qi, S.Z.

Chinese J. Biotechnol. 8, 318-323, 1992

A:Title: Cloning and partly sequencing of the porcine growth hormone (pGH) gene from pit

A:Reference number: PC1063

A:Accession: PC1063

A:Molecule type: mRNA

A:Residues: 97-108, 'E', '110-158 &lt;YAN&gt;

A:Experimental source: pituitary

R:Miller, J.B.; Howard, S.C.; Scapa, S.; Wilhelm, A.E.

J. Biol. Chem. 245, 3407-3415, 1970

A:Title: Cyanogen bromide cleavage and partial amino acid sequence of porcine growth hor

A:Reference number: A01516; MUID:70293161

A:Accession: A01516

A:Molecule type: protein

A:Residues: 27-30;149-194, 'N', '196-216 &lt;ML&gt;

R:Miller, J.B.

submitted to the Atlas, May 1971

A:Reference number: A94594

A:Accession: A94594

A:Molecule type: protein

A:Residues: 140-148 &lt;MI2&gt;

C:Genetics:

A:Gene: gh

A:introns: 4/1; 57/3; 96/3; 150/3

```

C:Superfamily: prolactin
C:Keywords: anterior pituitary; growth factor; hormone
F:1-26/Domain: signal sequence #status predicted <SIG>
F:27-216/Product: somatotropin #status predicted <MAT>
F:78-189/Disulfide bonds: #status predicted
F:206-214/Disulfide bonds: #status experimental

```

Query Match 64.7%; Score 440; DB 1; Length 216;

Best local similarity 66.9%; Pred. No. 1.5e-35;

Matches 89; Conservative 16; Mismatches 26; Indels 2; Gaps 2;

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OY 2 PPTPLSLRFLDAMRAHRLHOLADFTYQEFEEAYIPKQKYSFLQNFQTSLSSESPT 61
|| :||| || :||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 27 FPAMPLSSLFANAVALRAOHLHOLADTYKEFERAYIPGQKYS-IQNAQAFCFSETIPA 85

OY 62 PSNRRETOOKSNLELRISLLIQSMLEPVQFLRSVFANSLVYGASDSNVYDLKDEEG 121
|| :||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 86 PTGKDEAQQRSVDVLLRFSLLIQSMGVPQFLSRVFTNSLVFGTSD-RVYEKIKDLEEG 144

OY 122 IOTLMGRLEDGSP 134
|| || |||||
Db 145 IQALMRELEDGSP 157

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Search completed: September 25, 2002, 09:58:12  
Job time: 161 sec

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GenCore version 4.5  
Copyright (c) 1993 - 2000 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: September 25, 2002, 09:57:06 ; Search time 15.8 Seconds  
(without alignments)  
328.381 Million cell updates/sec

Title: US-09-819-094-24

Perfect score: 680  
Sequence: 1 MFPTPLSLRFLDNAMRAHR.....LKDLDEGIOTLGRLEDEGSP 134

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 105224 seqs, 38719550 residues

Total number of hits satisfying chosen parameters: 105224

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : SwissProt\_40.\*

Pred. No. is the number of results predicted by chance to have a  
score greater than or equal to the score of the result being printed,  
and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	67.0	98.5	217	1	SOMA_HUMAN P01241 homo sapien
2	64.5	94.9	217	1	SOMA_MACMU P33093 macaca mula
3	62.1	91.3	217	1	SOMA_CALJA O9gmb3 callithrix
4	60.8	89.4	217	1	SOMA_SAIIB P58343 salmieri bol
5	59.8	87.9	217	1	SOMA_HUMAN P01242 homo sapien
6	56.5	83.2	256	1	SOMA_HUMAN P09587 homo sapien
7	54.8	80.6	217	1	PLU_HUMAN P01243 homo sapien
8	53.5	78.7	217	1	SOMA_MACMU Q07370 macaca mula
9	44.5	65.4	216	1	SOMA_BALBO P33092 balaenopter
10	44.1	64.9	190	1	SOMA_LOXAP P20392 loxodonta a
11	44.0	64.7	190	1	SOMA_CANFA P33711 canis fam11
12	44.0	64.7	216	1	SOMA_FELCA P46404 felis silve
13	44.0	64.7	216	1	SOMA_PIG P01248 sus scrofa
14	43.9	64.6	216	1	SOMA_MOUSE P06880 mus musculu
15	43.8	64.4	216	1	SOMA_MUSVI P19795 mustela vis
16	43.7	64.3	216	1	SOMA_RAT P01244 rattus norv
17	43.6	64.1	190	1	P37885 lama guanac
18	43.6	63.8	190	1	SOMA_VULPU P10766 vulpes vulp
19	43.4	63.8	216	1	SOMA_RABIT P46407 oryctolagus
20	43.2	63.5	216	1	SOMA_HORSE P01245 equus cabal
21	43.2	63.4	217	1	SOMA_NYCPY O9gmb2 nycticebus
22	43.1	63.3	217	1	SOMA_GALSE O9gmai galago sene
23	42.5	62.5	217	1	SOMA_MONDEL P09160 monodelphis
24	42.0	61.8	215	1	SOMA_TRIVO O62754 trichosurus
25	41.8	61.5	217	1	SOMA_BOVIN P01246 bos taurus
26	41.8	61.5	217	1	SOMA_CEREL P56437 cervus elap
27	41.1	60.4	217	1	O18938 bubalus bub
28	40.9	60.1	217	1	SOMA_SHEEP P01247 ovis aries
29	40.0	58.8	216	1	SOMA_MELGA P22077 meleagris g
30	39.7	58.4	190	1	SOMA_CRONO P55705 crocodonius
31	39.7	58.4	191	1	SOMA_CHEMY P34005 chelononia my
32	39.7	58.4	216	1	SOMA_CHICK P08998 gallus gall
33	39.7	58.4	216	1	SOMA_CHICK P08998 gallus gall

## ALIGNMENTS

RESULT	1	ALIGNMENTS
SOMA_HUMAN	STANDARD:	PRT: 217 AA.
AC P01241	21-JUL-1986 (Rel. 01, Created)	
DT 01-MAR-1992 (Rel. 21, Last sequence update)		
DT 16-OCT-2001 (Rel. 40, Last annotation update)		
DE Somatotropin precursor (Growth hormone).		
GN GHI.		
OS Homo sapiens (Human).		
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;		
OC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.		
OX NCBI_TaxId=9606;		
OX [1]		
RP SEQUENCE FROM N.A.		
RX MEDLINE=82014939; PubMed=6269091;		
RA Denoto F.M., Moore D.D., Goodman H.M.;		
RT "Human growth hormone DNA sequence and mRNA structure: possible		
RT alternative splicing.";		
RL Nucleic Acids Res. 9:3719-3730(1981).		
RL [2]		
RP SEQUENCE FROM N.A.		
RX MEDLINE=80034477; PubMed=386281;		
RA Roskam W., Rougeon F.;		
RT "Molecular cloning and nucleotide sequence of the human growth		
RL hormone structural gene.";		
RL Nucleic Acids Res. 7:305-320(1979).		
RL [3]		
RP SEQUENCE FROM N.A.		
RX MEDLINE=79203293; PubMed=377496;		
RA Martial J.A., Halliwell R.A., Baxter J.D., Goodman H.M.;		
RT "Human growth hormone: complementary DNA cloning and expression in		
RT bacteria.";		
RL Science 205:602-607(1979).		
RL [4]		
RP SEQUENCE FROM N.A.		
RX MEDLINE=89307277; PubMed=2744760;		
RA Chen E.Y., Liao Y.C., Smith D.H., Barrera-Saldana H.A.,		
RA Gellinas R.E., Seeburg P.H.;		
RT "The human growth hormone locus: nucleotide sequence, biology, and		
RT evolution.";		
RL Genomics 4:479-497(1989).		
RL [5]		
RP SEQUENCE OF 27-217.		
RX MEDLINE=69289202; PubMed=5810834;		
RA Li C.H., Dixon J.S., Liu W.-K.;		
RT "Human pituitary growth hormone. XIX. The primary structure of the		
RT hormone.";		
RL Arch. Biochem. Biophys. 133:70-91(1969).		
RL [6]		
RP SEQUENCE OF 27-217, AND REVISIONS.		
RX MEDLINE=72143935; PubMed=5144027;		
RA Li C.H., Dixon J.S.;		
RT "Human pituitary growth hormone. 32. The primary structure of the		
RT hormone: revision.";		
RL Arch. Biochem. Biophys. 146:233-236(1971).		

O9pwb3 struthio ca  
P12288 anas platyr  
P12855 xenopus lae  
P79885 lepisosteus  
P26773 acipenser g  
P26774 acipenser g  
P10813 rana catesb  
O73849 bufo marinu  
P12856 xenopus lae  
P34006 ptilonace gl  
O73848 ptilonace gl  
P08899 anguilla ja

RN [7]  
 RP SEQUENCE OF 27-51 AND 104-120  
 RX MEDLINE=71139765; PubMed=5279046;  
 RA Niall H.D.;  
 RT "Revised primary structure for human growth hormone.";  
 RL Nature New Biol. 230:90-91(1971).  
 RN [8]  
 RP REVISION.  
 RX MEDLINE=73092028; PubMed=4675454;  
 RA Bewley T.A., Dixon J.S., Li C.H.;  
 RT "Sequence comparison of human pituitary growth hormone, human chorionic somatomammotropin, and ovine pituitary growth and lactogenic hormones.";  
 RL Int. J. Pept. Protein Res. 4:281-287(1972).  
 RN [9]  
 RP REVISION.  
 RA Niall H.D.;  
 RT "The chemistry of the human lactogenic hormones.";  
 RL (In) Griffiths K. (eds.);  
 RL Prolactin and carcinogenesis, Proc. fourth tenovus workshop prolactin, pp.13-20, Alpha Omega Alpha Press, Cardiff (1972).  
 RN [10]  
 RP REVISIONS TO 119-120 AND 157-159.  
 RX MEDLINE=71135968; PubMed=5279528;  
 RA Niall H.D., Hogan M.L., Sauer R., Rosenblum I.Y., Greenwood F.C.;  
 RT "Sequences of pituitary and placental lactogenic and growth hormones: evolution from a primordial peptide by gene reduplication.";  
 RL Proc. Natl. Acad. Sci. U.S.A. 68:866-869(1971).  
 RN [11]  
 RP SEQUENCE OF 27-57 AND 73-79.  
 RX MEDLINE=8117361; PubMed=7462247;  
 RA Chapman G.E., Rogers K.M., Brittain T., Bradshaw R.A., Bates O.J., Turner C., Cary P.D., Crane-Robinson C.;  
 RT "The 20,000 molecular weight variant of human growth hormone. Preparation and some physical and chemical properties.";  
 RL J. Biol. Chem. 256:2395-2401(1981).  
 RN [12]  
 RP SEQUENCE OF 46-57 AND 73-80.  
 RX MEDLINE=80130196; PubMed=7336479;  
 RA Lewis U.J., Bonewald L.F., Lewis L.J.;  
 RT "The 20,000-dalton variant of human growth hormone: location of the amino acid deletions.";  
 RL Biochem. Biophys. Res. Commun. 92:511-516(1980).  
 RN [13]  
 RP 3D-STRUCTURE MODELING.  
 RX MEDLINE=88190073; PubMed=3447173;  
 RA Cohen F.E., Kuntz I.D.;  
 RT "Prediction of the three-dimensional structure of human growth hormone.";  
 RL Proteins 2:162-166(1987).  
 RN [14]  
 RP X-RAY CRYSTALLOGRAPHY (2.8 ANGSTROMS).  
 RX MEDLINE=92196577; PubMed=1549776;  
 RA de Vos A.M., Uitsch M., Kossiakoff A.A.;  
 RT "Human growth hormone and extracellular domain of its receptor: crystal structure of the complex.";  
 RL Science 255:306-312(1992).  
 RN [15]  
 RP X-RAY CRYSTALLOGRAPHY (2.9 ANGSTROMS).  
 RX MEDLINE=95075462; PubMed=7984244;  
 RA Somers W., Uitsch M., de Vos A.M., Kossiakoff A.A.;  
 RT "The X-ray structure of a growth hormone-prolactin receptor complex.";  
 RL Nature 372:478-481(1994).  
 RN [16]  
 RP X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS).  
 RA Chantalat L., Chirgadze N.Y., Jones N., Korber F., Navaza J., Pavlovsk A.G., Wlodawer A.;  
 RT "The crystal-structure of wild-type growth-hormone at 2.5-A resolution.";  
 RL Protein Pept. Lett. 2:333-340(1995).  
 RN [17]  
 RP X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS).  
 RX MEDLINE=97113023; PubMed=8943276;

RA Sundstrom M., Lundqvist T., Roedin J., Giebel L.B., Milligan D., Norstedt G.;  
 RT "Crystal structure of an antagonist mutant of human growth hormone, g120r, in complex with its receptor at 2.9-A resolution.";  
 RL J. Biol. Chem. 271:32197-32203(1996).  
 CC - FUNCTION: GROWTH HORMONE PLAYS AN IMPORTANT ROLE IN GROWTH CONTROL.  
 CC - SUBCELLULAR LOCATION: Secreted.  
 CC - ALTERNATIVE PRODUCTS: A 20 kDa SHORT VARIANT WHICH LACKS 58-72 IS PRODUCED AS THE RESULT OF SPLICING AT THE ALTERNATE JUNCTION OF THE SECOND INTRON.  
 CC - DISEASE: DEFECTS IN GH1 ARE A CAUSE OF PITUITARY DWARFISM I AND IV.  
 CC - PHARMACEUTICAL: Available under the names Nutropin or Protoprin (Genentech), Norditropin (Novo Nordisk), Genotropin (Pharmacia Upjohn), Humatrope (Eli Lilly) and Saizen or Serostim (Serono). Used for the treatment of growth hormone deficiency and for Turner's syndrome.  
 CC - SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.  
 CC -----  
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 CC -----  
 DR EMBL: V00519; CAA23778.1; -;  
 DR EMBL: J03071; AAA52549.1; -;  
 DR EMBL: M13438; AAA98618.1; -;  
 DR EMBL: A12770; CAA01057.1; -;  
 DR EMBL: A00469; CAA00065.1; -;  
 DR PIR: A01510; STHU.  
 DR PIR: A32435; A32435.  
 DR PDB: 3HHR; 30-APR-94.  
 DR PDB: 1HGW; 31-JAN-94.  
 DR PDB: 1HGU; 07-DEC-95.  
 DR PDB: 1HWG; 19-NOV-97.  
 DR PDB: 1HWH; 19-NOV-97.  
 DR PDB: 1AXI; 28-JAN-98.  
 DR PDB: 1A22; 29-APR-98.  
 DR PDB: 1BP3; 23-SEP-98.  
 DR MIM: 139250; -;  
 DR MIM: 262400; -;  
 DR MIM: 262650; -;  
 DR InterPro: IPR001400; SOMATOTROPIN.  
 DR Pfam: PF00103; hormone, 1.  
 DR PRINTS: PR00836; SOMATOTROPIN.  
 DR PROSITE: PS00266; SOMATOTROPIN\_1; 1.  
 DR PROSITE: PS00338; SOMATOTROPIN\_2; 1.  
 KW Pituitary; Hormone; Alternative splicing; Signal; 3D-structure; Dwarfism; Pharmaceutical; Polymorphism.  
 FT SIGNAL 1 26  
 FT CHAIN 27 217 SOMATOTROPIN.  
 FT DISULFID 79 191  
 FT DISULFID 208 215  
 FT VARSPPLIC 58 72  
 FT VARIANT 3 3  
 FT VARIANT 105 105  
 FT VARIANT 136 136  
 FT HELIX 32 61  
 FT HELIX 64 72  
 FT TURN 76 77  
 FT TURN 80 83  
 FT HELIX 90 94  
 FT TURN 95 95  
 FT HELIX 98 110  
 FT TURN 111 114  
 FT HELIX 115 125  
 MISSING (IN 20 KDA ISOFORM).  
 T -> A (IN DBSNP:2001345).  
 S -> C (IN DBSNP:6174).  
 /FTid=VAR\_011917.  
 /FTid=VAR\_011918.  
 V -> I (IN DBSNP:5388).  
 /FTid=VAR\_011919.

Query Match 98.5%; Score 670; DB 1; Length 217;  
Best Local Similarity 99.2%; Pred. No. 2.5e-58;  
Matches 132; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

2 FPTPLSRFLDNAMLRARHLHQLAFDTYQEFEEAYIPKQKYSFLONPOTSLSFSES IPT 61  
|||||  
27 FPTPLSRFLDNAMLRARHLHQLAFDTYQEFEEAYIPKQKYSFLONPOTSLSFSES IPT 86  
|||||

62 PSNRETOOKSNLELRIRISLLIQSWLEPVOFLRSVFANSIYVGASDSNVYDLKLEEG 121  
|||||

87 PSNRETOOKSNLELRIRISLLIQSWLEPVOFLRSVFANSIYVGASDSNVYDLKLEEG 146  
|||||

122 IOTLMGRLEDGS 134  
|||||

147 IOTLMGRLEDGS 159  
|||||

RESULT 2  
SOMA\_MACMU STANDARD; PRT; 217 AA.

ID SOMA\_MACMU  
AC P31093;  
DT 01-OCT-1993 (Rel. 27, Created)  
DT 01-OCT-1994 (Rel. 30, Last sequence update)  
DT 01-FEB-1996 (Rel. 33, Last annotation update)  
DE Somatotropin precursor (Growth hormone).  
GN GHL.  
OS Macaca mulatta (Rhesus macaque).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Primates; Catarrhini; Cercopithecoidea;  
OC Cercopithecinae; Macaca.  
OX NCBI\_TaxID=9544;  
RN [1]  
RP SEQUENCE FROM N.A.  
RX MEDLINE=94008724; PubMed=8404617;  
RA Golos T.G., Durning M., Fisher J.M., Fowler P.D.;  
RT "Cloning of four growth hormone/chorionic somatomotropin-related  
RT complementary deoxyribonucleic acids differentially expressed during  
RT pregnancy in the rhesus monkey placenta.";  
RL Endocrinology 133:1744-1752(1993).  
RN [2]  
RP SEQUENCE OF 27-217.  
RX MEDLINE=86129460; PubMed=3080959;  
RA Li C.H., Chung D., Labm H.W., Stein S.;  
RT "The primary structure of monkey pituitary growth hormone.";  
RL Arch. Biochem. Biophys. 245:287-291(1986).  
CC -1- FUNCTION: GROWTH HORMONE PLAYS AN IMPORTANT ROLE IN GROWTH  
CC CONTROL.  
CC -1- SUBCELLULAR LOCATION: Secreted.  
CC -1- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.  
CC -----  
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CC -----  
DR EMBL: J16556; AAA18842.1; -  
DR PIR: A05094; A05094.  
DR HSSP: P01241; IHWG.  
DR InterPro: IPR001400; SOMATOTROPIN.  
DR Pfam: PF00103; hormone; 1.  
DR PRINTS: PR00836; SOMATOTROPIN.  
DR PROSITE: PS00266; SOMATOTROPIN\_1; 1.  
DR PROSITE: PS00338; SOMATOTROPIN\_2; 1.  
KM Hormone; pituitary; signal.  
FT SIGNAL 1 26  
FT CHAIN 27 217 SOMATOTROPIN.  
FT DISULFID 79 191 BY SIMILARITY.  
FT DISULFID 208 215 BY SIMILARITY.  
FT CONFLICT 100 100 E -> Q (IN REF. 2).

FT CONFLICT 179 179 N -> D (IN REF. 2).  
SQ SEQUENCE 217 AA; 24913 MW; 2C5180341EEC46D0 CRC64;

Query Match 94.9%; Score 645; DB 1; Length 217;  
Best Local Similarity 97.0%; Pred. No. 6.9e-56;  
Matches 128; Conservative 1; Mismatches 3; Indels 0; Gaps 0;

2 FPTPLSRFLDNAMLRARHLHQLAFDTYQEFEEAYIPKQKYSFLONPOTSLSFSES IPT 61  
|||||  
27 FPTPLSRFLDNAMLRARHLHQLAFDTYQEFEEAYIPKQKYSFLONPOTSLSFSES IPT 86  
|||||

62 PSNRETOOKSNLELRIRISLLIQSWLEPVOFLRSVFANSIYVGASDSNVYDLKLEEG 121  
|||||

87 PSNRETOOKSNLELRIRISLLIQSWLEPVOFLRSVFANSIYVGASDSNVYDLKLEEG 146  
|||||

122 IOTLMGRLEDGS 133  
|||||

147 IOTLMGRLEDGS 158  
|||||

RESULT 3  
SOMA\_CALIA STANDARD; PRT; 217 AA.

ID SOMA\_CALIA  
AC O9GMB3;  
DT 01-MAR-2002 (Rel. 41, Created)  
DT 01-MAR-2002 (Rel. 41, Last sequence update)  
DT 01-MAR-2002 (Rel. 41, Last annotation update)  
DE Somatotropin precursor (Growth hormone).  
GN GHL.  
OS Callithrix jacchus (Common marmoset).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Primates; Platyrrhini; Callitrichidae; Callitrix.  
OX NCBI\_TaxID=9483;  
RN [1]  
RP SEQUENCE FROM N.A.  
RA Wallis O.C., Wallis M.;  
RT "Cloning and characterisation of a putative growth hormone encoding  
RT gene from the marmoset (Callithrix jacchus).";  
RL Submitted (Aug-2000) to the EMBL/GenBank/DBJ databases.  
CC -1- FUNCTION: GROWTH HORMONE PLAYS AN IMPORTANT ROLE IN GROWTH  
CC CONTROL.  
CC -1- SUBCELLULAR LOCATION: Secreted.  
CC -1- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.  
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CC or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).  
CC -----  
DR EMBL: AJ297563; CAC03481.1; -  
DR InterPro: IPR001400; SOMATOTROPIN.  
DR Pfam: PF00103; hormone; 1.  
DR PRINTS: PR00836; SOMATOTROPIN.  
DR PROSITE: PS00266; SOMATOTROPIN\_1; 1.  
DR PROSITE: PS00338; SOMATOTROPIN\_2; 1.  
KM Hormone; pituitary; signal.  
FT SIGNAL 1 26  
FT CHAIN 27 217 SOMATOTROPIN.  
FT DISULFID 79 191 BY SIMILARITY.  
FT DISULFID 208 215 BY SIMILARITY.  
SQ SEQUENCE 217 AA; 24959 MW; E102151A12CE6192 CRC64;

Query Match 91.3%; Score 621; DB 1; Length 217;  
Best Local Similarity 90.2%; Pred. No. 1.5e-53;  
Matches 120; Conservative 8; Mismatches 5; Indels 0; Gaps 0;

2 FPTPLSRFLDNAMLRARHLHQLAFDTYQEFEEAYIPKQKYSFLONPOTSLSFSES IPT 61  
|||||

Db 27 FPIPLRLDNLAMLRHRLHQAFTYQEFEEAYIPKQKXSFIONPOTSLCSSESIP 86  
 Qy 62 PSNNEEQOKSNLELRISILLIQSWLEPVQFLRSVFANSLYVGSNSNYDLKDEEG 121  
 Db 87 PASKREYQOKSNLELRISILLIQSWLEPVQFLRSVFANSLLYGVSDVYEYKLEDEEG 146  
 Qy 122 IOTLMGRLEDEGSP 134  
 Db 147 IOTLMGRLEDEGSP 159

## RESULT 4

SOMA\_SATIB STANDARD: PRT: 217 AA.

AC P58343;  
 DT 01-MAR-2002 (Rel. 41, Created)  
 DT 01-MAR-2002 (Rel. 41, Last sequence update)  
 DT 01-MAR-2002 (Rel. 41, Last annotation update)  
 DE Somatotropin precursor (Growth hormone).  
 GN GH1.  
 OS Saimiri boliviensis boliviensis (Bolivian squirrel monkey).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 CC Mammalia; Eutheria; Primates; Platyrrhini; Cebidae; Saimiri.  
 OX NCBI\_TaxID=39432;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE-21265430; PubMed-11371582;  
 RA Liu J.C., Makova K.D., Adkins R.M., Gibson S., Li W.H.;  
 RT "Epistodic evolution of growth hormone in primates and emergence of the  
 RT species specificity of human growth hormone receptor.";  
 RL Mol. Biol. Evol. 18:945-953(2001).  
 CC -1- FUNCTION: GROWTH HORMONE PLAYS AN IMPORTANT ROLE IN GROWTH  
 CC CONTROL.  
 CC -1- SUBCELLULAR LOCATION: Secreted.  
 CC -1- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.  
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 CC -----  
 CC EMBL: AF339060; AAK62287.1; -  
 DR PROSITE: PS00266; SOMATOTROPIN\_1; 1.  
 DR PROSITE: PS00338; SOMATOTROPIN\_2; 1.  
 KW Hormone; Pituitary; Signal.  
 FT SIGNAL 1 26  
 FT CHAIN 27 217  
 FT DISULFID 79 191  
 FT FT 208 215  
 SQ SEQUENCE 217 AA; 24864 MW; 95152899292529F7 CRC64;

Query Match 89.4%; Score 608; DB 1; Length 217;  
 Best Local Similarity 88.7%; Pred. No. 2,8e-52;  
 Matches 118; Conservative 8; Mismatches 7; Indels 0; Gaps 0;

Qy 2 FPIPLRLDNLAMLRHRLHQAFTYQEFEEAYIPKQKXSFIONPOTSLCSSESIP 61  
 Db 27 FPIPLRLDNLAMLRHRLHQAFTYQEFEEAYIPKQKXSFIONPOTSLCSSESIP 86  
 Qy 62 PSNNEEQOKSNLELRISILLIQSWLEPVQFLRSVFANSLYVGSNSNYDLKDEEG 121  
 Db 87 PASKREYQOKSNLELRISILLIQSWLEPVQFLRSVFANSLLYGVSDVYEYKLEDEEG 146  
 Qy 122 IOTLMGRLEDEGSP 134  
 Db 147 IOTLMGRLEDEGSP 159

## RESULT 5

SOMV\_HUMAN STANDARD: PRT: 217 AA.  
 ID SOMV\_HUMAN  
 AC P01242;  
 DT 21-JUL-1986 (Rel. 01, Created)  
 DT 01-AUG-1991 (Rel. 19, Last sequence update)  
 DT 16-OCT-2001 (Rel. 40, Last annotation update)  
 DE Growth hormone variant I precursor (GH-V) (Placenta-specific growth  
 DE hormone).  
 GN GH2.  
 OS Homo sapiens (Human).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 CC Mammalia; Eutheria; Primates; Catarrhini; Hominiidae; Homo.  
 OX NCBI\_TaxID=9606;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE-89307277; PubMed-2744760;  
 RA Chen E.Y., Liao Y.C., Smith D.H., Barrera-Saldana H.A.,  
 RA Gellinas R.E., Seeburg P.H.;  
 RT "The human growth hormone locus: nucleotide sequence, biology, and  
 RT evolution.";  
 RL Genomics 4:479-497(1989).  
 RN [2]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE-88243769; PubMed-3379057;  
 RA Cooke N.E., Ray J., Emery J.G., Liebhauer S.A.;  
 RT "Two distinct species of human growth hormone-variant mRNA in the  
 RT human placenta predict the expression of novel growth hormone  
 RT proteins.";  
 RL J. Biol. Chem. 263:9001-9006(1988).  
 RN [3]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE-83182010; PubMed-7169009;  
 RA Seeburg P.H.;  
 RT "The human growth hormone gene family: nucleotide sequences show  
 RT recent divergence and predict a new polypeptide hormone.";  
 RL DNA 1:239-249(1982).  
 RN [4]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE-89024984; PubMed-2460050;  
 RA Igout A., Scippo M.L., Franckenne F., Hennen G.;  
 RT "Cloning and nucleotide sequence of placental hGH-V cDNA.";  
 RL Arch. Int. Physiol. Biochim. 96:63-67(1988).  
 CC -1- SUBCELLULAR LOCATION: Secreted.  
 CC -1- ALTERNATIVE PRODUCTS: TWO GROWTH HORMONE VARIANTS ARE PRODUCED BY  
 CC ALTERNATIVE SPLICING OF THE SAME GENE.  
 CC -1- TISSUE SPECIFICITY: THIS PROTEIN SEEMS TO BE EXPRESSED IN THE  
 CC PLACENTA.  
 CC -1- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.  
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 CC -----  
 CC EMBL: K00470; AAA98619.1; -  
 DR EMBL: J03756; AAB59548.1; -  
 DR EMBL: J03071; AAA2552.1; -  
 DR EMBL: M38451; AAA35891.1; -  
 DR PIR: A01511; SPHUV.  
 DR PIR: B28072; B28072.  
 DR PIR: D32435; D32435.  
 DR HSSP: P01241; 1HWH.  
 DR MIM: 139240; -  
 DR InterPro: IPR001400; SOMATOTROPIN.  
 DR Pfam: PF00103; hormone; 1.  
 DR PRINTS: PR00836; SOMATOTROPIN.  
 DR PROSITE: PS00266; SOMATOTROPIN\_1; 1.  
 DR PROSITE: PS00338; SOMATOTROPIN\_2; 1.  
 KW Hormone; Placenta; Signal; Glycoprotein; Alternative splicing.  
 FT SIGNAL 1 26

FT CHAIN 27 217 GROWTH HORMONE VARIANT I.  
 FT DISULFID 79 191 BY SIMILARITY.  
 FT DISULFID 208 215 BY SIMILARITY.  
 FT CARBOHYD 166 166 N-LINKED (GLCNAC. . .) (POTENTIAL).  
 FT CONFLICT 35 35 L -> P (IN REF. 3).  
 FT CONFLICT 109 109 T -> I (IN REF. 2 AND 4).  
 SQ SEQUENCE 217 AA: 24987 MW: 40FE8620A5138D1C CRC64;

Query Match 87.9%; Score 598; DB 1; Length 217;  
 Best Local Similarity 91.0%; Pred. No. 2,7e-51;  
 Matches 121; Conservative 3; Mismatches 9; Indels 0; Gaps 0;

QY 2 FPTPLSRLEFDNMLRAHRLHOLAFDPTQEFEEAYIPKEOKYSFLQNPOTLSFSESIP 61  
 Db 27 FPTPLSRLEFDNMLRAHRLYQLAYDTYOEFEEAYILKEOKYSFLQNPOTLSFSESIP 86  
 QY 62 PSNREFTQOKSNLELRISLLIQSWLEPVOFLRSVFANSIVYGASDSNYYDLKLEEG 121  
 Db 87 PSNRVKTQOKSNLELRISLLIQSWLEPVOFLRSVFANSIVYGASDSNYYRHILKLEEG 146  
 QY 122 IOTLMGRLEDDGSP 134  
 Db 147 IOTLMWRLEDDGSP 159

RESULT 6  
 SOMW\_HUMAN STANDARD; PRT; 256 AA.  
 AC P09587;

DT 01-MAR-1989 (Rel. 10, Created)  
 DT 01-MAR-1989 (Rel. 10, Last sequence update)  
 DT 16-OCT-2001 (Rel. 40, Last annotation update)  
 DE Growth hormone variant II precursor (GH-V2).  
 GN GH2.  
 OS Homo sapiens (Human).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.  
 OX NCBI\_TaxID=9606;

RN [1]  
 RP SEQUENCE FROM N.A.  
 RA MEDLINE=89307277; PubMed=2744760;  
 RA Chen E.Y., Liao Y.C., Smith D.H., Barrera-Saldana H.A.,  
 RA Gellinas R.E., Seeburg P.H.;  
 RT "The human growth hormone locus: nucleotide sequence, biology, and  
 RT evolution";  
 RL Genomics 4:479-497(1989).

RN [2]  
 RP SEQUENCE FROM N.A.  
 RA MEDLINE=88243769; PubMed=3379057;  
 RA Cooke N.E., Ray J., Emery J.G., Liephaber S.A.;  
 RT "Two distinct species of human growth hormone-variant mRNA in the  
 RT human placenta predict the expression of novel growth hormone  
 RT proteins";  
 RL J. Biol. Chem. 263:9001-9006(1988).

CC 1- SUBCELLULAR LOCATION: Secreted.  
 CC 1- ALTERNATIVE PRODUCTS: TWO GROWTH HORMONE VARIANTS ARE PRODUCED BY  
 CC ALTERNATIVE SPLICING OF THE SAME GENE.  
 CC 1- MISCELLANEOUS: THE C-TERMINAL REGION OF THIS PROTEIN IS DIFFERENT  
 CC FROM THAT OF ALL OTHERS PROTEINS OF THIS FAMILY.  
 CC 1- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.

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DR EMBL: J03756; AAB59547.1; -  
 DR PIR: A28072; A28072.  
 DR HSSP: P01241; IH0W.

DR MIM: 139240; -  
 DR InterPro: IPR001400; SOMATOTROPIN.  
 DR Pfam: PF00103; hormone. 1.  
 DR PROSITE: PS00266; SOMATOTROPIN\_1; 1.  
 DR PROSITE: PS00338; SOMATOTROPIN\_2; FALSE NEG.  
 KW hormone; Placenta; signal; Alternative splicing.  
 FT SIGNAL 1 26  
 FT CHAIN 27 256 GROWTH HORMONE VARIANT II.  
 FT CONFLICT 237 240 AERG -> EAGR (IN REF. 2).  
 SQ SEQUENCE 256 AA: 28778 MW: 4605AD39FD8C44FE CRC64;

Query Match 83.2%; Score 565.5; DB 1; Length 256;  
 Best Local Similarity 87.3%; Pred. No. 4.8e-48;  
 Matches 117; Conservative 4; Mismatches 12; Indels 1; Gaps 1;

QY 2 FPTPLSRLEFDNMLRAHRLHOLAFDPTQEFEEAYIPKEOKYSFLQNPOTLSFSESIP 61  
 Db 27 FPTPLSRLEFDNMLRAHRLYQLAYDTYOEFEEAYILKEOKYSFLQNPOTLSFSESIP 86  
 QY 62 PSNREFTQOKSNLELRISLLIQSWLEPVOFLRSVFANSIVYGASDSNYYDLKLEEG 121  
 Db 87 PSNRVKTQOKSNLELRISLLIQSWLEPVOFLRSVFANSIVYGASDSNYYRHILKLEEG 146  
 QY 122 IOTLMG-RLEDDGSP 134  
 Db 147 IOTLMWRVAVAGIP 160

RESULT 7  
 PTL\_HUMAN STANDARD; PRT; 217 AA.  
 ID PTL\_HUMAN  
 AC P01243;

DT 21-JUL-1986 (Rel. 01, Created)  
 DT 01-APR-1988 (Rel. 07, Last sequence update)  
 DT 16-OCT-2001 (Rel. 40, Last annotation update)  
 DE Lactogen precursor (Chorionmammotropin) (Chorionic somatomammotropin).  
 GN CSH1 AND CSH3.  
 OS Homo sapiens (Human).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.  
 OX NCBI\_TaxID=9606;

RN [1]  
 RP SEQUENCE FROM N.A. (GENE CSH1).  
 RA MEDLINE=85030426; PubMed=6208192;  
 RA Selby M.J., Barta A., Baxter J.D., Bell G.I., Eberhardt N.L.;  
 RT "Analysis of a major human chorionic somatomammotropin gene. Evidence  
 RT for two functional promoter elements";  
 RL J. Biol. Chem. 259:13131-13138(1984).

RN [2]  
 RP SEQUENCE FROM N.A. (GENE CSH3).  
 RA MEDLINE=87161235; PubMed=3030680;  
 RA Hirt H., Krimelman J., Birnbaum M.J., Chen E.Y., Seeburg P.H.,  
 RA Eberhardt N.L., Barta A.;  
 RT "The human growth hormone gene locus: structure, evolution, and  
 RT allelic variations";  
 RL DNA 6:59-70(1987).

RN [3]  
 RP SEQUENCE FROM N.A.  
 RA MEDLINE=83160916; PubMed=6300056;  
 RA Barrera-Saldana H.A., Seeburg P.H., Saunders G.F.;  
 RT "Two structurally different genes produce the same secreted human  
 RT placental lactogen hormone";  
 RL J. Biol. Chem. 258:3787-3793(1983).

RN [4]  
 RP SEQUENCE FROM N.A. (GENES CSH1 AND CSH3).  
 RA MEDLINE=89307277; PubMed=2744760;  
 RA Chen E.Y., Liao Y.C., Smith D.H., Barrera-Saldana H.A., Gellinas R.E.,  
 RA Seeburg P.H.;  
 RT "The human growth hormone locus: nucleotide sequence, biology, and  
 RT evolution";  
 RL Genomics 4:479-497(1989).  
 [5]

RP SEQUENCE.  
RX MEDLINE=63182010; PubMed=7169009;  
RA Seeburg P.H.;  
RT "The human growth hormone gene family: nucleotide sequences show  
RT recent divergence and predict a new polypeptide hormone.";  
RL DNA 1:239-249(1982).  
RN  
RP SEQUENCE OF 50-217 FROM N.A.  
RX MEDLINE=78071161; PubMed=593368;  
RA Shine J., Seeburg P.H., Martial J.A., Baxter J.D., Goodman H.M.;  
RT "Construction and analysis of recombinant DNA for human chorionic  
RT somatomammotropin.";  
RL Nature 270:494-499(1977).  
RN  
RP SEQUENCE OF 27-217.  
RX MEDLINE=73201971; PubMed=4712450;  
RA Li C.H., Dixon J.S., Chung D.;  
RT "Amino acid sequence of human chorionic somatomammotropin.";  
RL Arch. Biochem. Biophys. 155:95-110(1973).  
RN  
RP SEQUENCE OF 27-117.  
RX MEDLINE=72016313; PubMed=5286363;  
RA Sherwood L.M., Handwerker S., McLaurin W.D., Lanner M.;  
RT "Amino acid sequence of human placental lactogen.";  
RL Nature New Biol. 233:59-61(1971).  
RN  
RP ERRATUM.  
RA Sherwood L.M., Handwerker S., McLaurin W.D., Lanner M.;  
RL Nature New Biol. 235:64-64(1972).  
RN  
RP INTERCHAIN DISULFIDE BONDS.  
RX MEDLINE=79173081; PubMed=438159;  
RA Schneider A.B., Kowalski K., Russell J., Sherwood L.M.;  
RT "Identification of the interchain disulfide bonds of dimeric human  
RT placental lactogen.";  
RL J. Biol. Chem. 254:3782-3787(1979).  
CC  
CC -1- FUNCTION: SIMILAR TO THAT OF SOMATOTROPIN.  
CC -1- SUBCELLULAR LOCATION: Secreted.  
CC  
CC -1- MISCELLANEOUS: THE SEQUENCE OF CSH-1 IS SHOWN.  
CC -1- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.  
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CC  
CC EMBL: V00573; CAA23836.1; -  
DR EMBL: J00289; AAA98747.1; -  
DR EMBL: K02401; AAA52115.1; -  
DR EMBL: M15894; AAA52116.1; -  
DR EMBL: J03071; AAA52551.1; -  
DR EMBL: J00118; AAA98621.1; -  
DR PIR: A01512; LCHUC.  
DR PIR: A26449; A26449.  
DR PIR: C32435; C32435.  
DR PIR: E32435; E32435.  
DR HSSP: P01241; 1HWH.  
DR MIM: 130200; -  
DR InterPro: IPR001400; SOMATOTROPIN.  
DR Pfam: PF00103; hormone.1.  
DR PRINTS: PR00836; SOMATOTROPIN.  
DR PROSITE: PS00266; SOMATOTROPIN\_1; 1.  
DR PROSITE: PS00338; SOMATOTROPIN\_2; 1.  
KM Hormone; Placenta; Multigene family; Signal.  
FT SIGNAL 1 26  
FT CHAIN 27 217 LACTOGEN.  
FT DISULFID 79 191  
FT DISULFID 208 215  
FT DISULFID 208 215  
FT DISULFID 215 215 INTERCHAIN (WITH C-215 IN A DIMER).  
FT DISULFID 215 215 INTERCHAIN (WITH C-208 IN A DIMER).  
FT

FT VARIANT 3 3 P -> A (IN CSH-3).  
FT  
FT VARIANT 104 105 /FTID=VAR\_007166.  
FT  
FT CONFLICT 84 84 I -> T (IN REF. 8).  
FT CONFLICT 95 95 MISSING (IN REF. 8).  
FT CONFLICT 116 116 MISSING (IN REF. 8).  
FT CONFLICT 134 136 SDD -> BBS (IN REF. 8).  
SQ SEQUENCE 217 AA; 25020 MW; 235BDC7A713F431 CRC64;  
  
Query Match 80.6%; Score 548; DB 1; Length 217;  
Best Local Similarity 82.3%; Pred. No. 2e-46; Mismatches 12; Indels 0; Gaps 0;  
Matches 107; Conservative 11; Mismatches 12; Indels 0; Gaps 0;  
QY 4 TIPSRLFDNMLRANRLHOLAEDTYOEFEAYIPREOKYSLFQNPOTSLSPSESIPPS 63  
DB 29 TVPLSRLFDHMLQAHRAHOLAIDTYOEFETRYIPDKQYSFLHDSQTSFCFSDSIPPS 88  
QY 64 NREEQKSNLELRISLLILQSLPEVQRLRSVFANSLYGCASDSNYDLKDEEGIQ 123  
DB 89 NNEEQKSNLELRISLLILQSLPEVQRLRSVFANSLYGCASDSNYDLKDEEGIQ 148  
QY 124 TLMGRLEDGS 133  
DB 149 TLMGRLEDGS 158  
  
RESULT 8  
SOMV\_MACMU ID SOMV\_MACMU STANDARD; PRT; 217 AA.  
AC Q07370; Q28494;  
DT 01-NOV-1997 (Rel. 35, Created)  
DT 01-NOV-1997 (Rel. 35, Last sequence update)  
DT 01-NOV-1997 (Rel. 35, Last annotation update)  
DE Growth hormone variant I precursor (GH-V) (placenta-specific growth  
DE hormone).  
DE  
GN GH2.  
OS Macaca mulatta (Rhesus macaque).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Primates; Catarrhini; Cercopithecoidea;  
OC Cercopithecoidea; Macaca.  
OX NCBI\_Taxid=9544;  
RN [1]  
RP SEQUENCE FROM N.A.  
RA Goios T.G.;  
RL Submitted (JAN-1994) to the EMBL/Genbank/DBJ databases.  
RN [2]  
RP SEQUENCE FROM N.A.  
RC TISSUE=Placenta;  
RX MEDLINE=94008724; PubMed=8404617;  
RA Goios T.G., Durning M., Fisher J.M., Fowler P.D.;  
RT "Cloning of four growth hormone/chorionic somatomammotropin-related  
RT complementary deoxyribonucleic acids differentially expressed during  
RT pregnancy in the rhesus monkey placenta.";  
RL Endocrinology 133:1744-1752(1993).  
CC  
CC -1- SUBCELLULAR LOCATION: Secreted (By similarity).  
CC -1- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.  
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CC  
CC EMBL: U02293; AAA03391.1; -  
DR EMBL: L16555; AAA20180.1; -  
DR HSSP: P01241; 1HGU.  
DR InterPro: IPR001400; SOMATOTROPIN.  
DR Pfam: PF00103; hormone.1.  
DR PRINTS: PR00836; SOMATOTROPIN.  
DR



QY 2 F P P T P L S R L F D N A M L R A H R L H O L A F D T Y O E F F E A Y I P K E O K Y S F L O N P Q T S L S F S E S I P T 61  
|| : ||| || || : ||| || : ||| ||| : || : ||| ||| ||| : || : ||| ||| ||| : ||| |||

DB 1 PFAMPLSSIFANAVLRAQHLEHLAADYKKEFERAYIPGORY-FLONASTGCFSEVJPT 59  
 QY 62 PSNRETOOKSNLELLRLSLILIOSWLEPVQFLRSFANSIYVGASDSNVYDLKDLDEEG 121  
 DB 60 PANKDEAQRSDVELLRSLILIOSWLGVPQFLERAYANLIVGTSD-RVYEKLDLEEG 118  
 QY 122 IOTLMGRLEDEGSP 134  
 DB 119 IQALMRELEDEGSP 131

RESULT 11  
 SOMA\_LOXAF STANDARD; PRT; 190 AA.  
 AC P20392;  
 DT 01-FEB-1991 (Rel. 17, Created)  
 DT 01-FEB-1991 (Rel. 17, Last sequence update)  
 DT 15-DEC-1998 (Rel. 37, Last annotation update)  
 DE Somatotropin (Growth hormone).  
 GN GHI.  
 OS *Loxodonta africana* (African elephant).  
 OC Eukaryota; Metazoa; Chordata; Cranialata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Proboscidea; Elephantidae; Loxodonta.  
 OX NCBI\_TextID=9785;  
 RN [1]  
 RP SEQUENCE.  
 RA Hulmes J.D., Miedel M.C., Li C.H., Pan Y.C.E.;  
 RT "Primary structure of elephant growth hormone."  
 RL Int. J. Pept. Protein Res. 33:368-372(1988).  
 CC -1- FUNCTION: GROWTH HORMONE PLAYS AN IMPORTANT ROLE IN GROWTH CONTROL.  
 CC -1- SUBCELLULAR LOCATION: Secreted.  
 CC -1- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.  
 CC PIR: JK0219; JK0219.  
 DR HSSP: P01246; 1BST.  
 DR InterPro: IPR001400; SOMATOTROPIN.  
 DR Pfam: PF00103; hormone; 1.  
 DR PRINTS: PR00836; SOMATOTROPIN.  
 DR PROSITE: PS00266; SOMATOTROPIN\_1; 1.  
 DR PROSITE: PS00338; SOMATOTROPIN\_2; 1.  
 DR Hormone; Pituitary.  
 FT DISULFID 52 163 BY SIMILARITY.  
 FT DISULFID 180 188 BY SIMILARITY.  
 SQ SEQUENCE 190 AA; 21761 MW; 05B860813DB741F2 CRC64;

Query Match 64.7%: Score 440; DB 1; Length 190;  
 Best Local Similarity 66.9%; Pred. No. 5.7e-36;  
 Matches 89; Conservative 16; Mismatches 26; Indels 2; Gaps 2;  
 QY 2 PFTITLPLSLFDNMLRAHRLHQLAFDYQFEERAYIPKECKYSFLONPOTSLSFSESIPPT 61  
 DB 1 PFAMPLSSIFANAVLRAQHLEHLAADYKKEFERAYIPGORYS-IONAQAACFSETIPA 59  
 QY 62 PSNRETOOKSNLELLRLSLILIOSWLEPVQFLRSFANSIYVGASDSNVYDLKDLDEEG 121  
 DB 60 PTKGDEAQRSDVELLRSLILIOSWLGVPQFLSRFTNSLVFGTSD-RVYEKLDLEEG 118  
 QY 122 IOTLMGRLEDEGSP 134  
 DB 119 IQALMRELEDEGSP 131

RESULT 12  
 SOMA\_CANFA STANDARD; PRT; 216 AA.  
 AC P33711; Q9TQ76;  
 DT 01-FEB-1994 (Rel. 28, Created)  
 DT 16-OCT-2001 (Rel. 40, Last sequence update)  
 DT 16-OCT-2001 (Rel. 40, Last annotation update)  
 DE Somatotropin precursor (Growth hormone).  
 GN GHI OR GH.  
 OS *Canis familiaris* (Dog).

OC Eukaryota; Metazoa; Chordata; Cranialata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.  
 OX NCBI\_TextID=9615;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA MEDLINE-94266166; PubMed-8206387;  
 RA Ascacio-Martinez J.A., Barrera-Saldana H.A.;  
 RT "A dog growth hormone cDNA codes for a mature protein identical to pig growth hormone."  
 RL Gene 143:277-280(1994).  
 RN [2]  
 RP SEQUENCE FROM N.A.  
 RA van Leeuwen I.S., Teske E., van Garderen E., Rutteman G.R., Mol J.A.;  
 RT "Extrapituitary growth hormone expression in the dog is initiated at the normal pituitary transcription start site in the mammary gland and at multiple upstream sites in lymphoid cells."  
 RL Submitted (MAR-1997) to the EMBL/GenBank/DBJ databases.  
 RN [3]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Mammary gland;  
 RX MEDLINE-9937113; PubMed-10411306;  
 RA Lantinga-van Leeuwen I.S., Oudshoorn M., Mol J.A.;  
 RT "Canine mammary growth hormone gene transcription initiates at the pituitary-specific start site in the absence of Pit-1."  
 RL Mol. Cell. Endocrinol. 150:121-128(1999).  
 CC -1- FUNCTION: GROWTH HORMONE PLAYS AN IMPORTANT ROLE IN GROWTH CONTROL.  
 CC -1- SUBCELLULAR LOCATION: Secreted.  
 CC -1- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.  
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 CC EMBL: Z23067; CA80601.1; -;  
 DR EMBL: U92533; AAF21502.1; -;  
 DR EMBL: AF069071; AAD43366.1; -;  
 DR PIR: S35790; S35790.  
 DR HSSP: P01246; 1BST.  
 DR InterPro: IPR001400; SOMATOTROPIN.  
 DR Pfam: PF00103; hormone; 1.  
 DR PRINTS: PR00836; SOMATOTROPIN.  
 DR PROSITE: PS00266; SOMATOTROPIN\_1; 1.  
 DR PROSITE: PS00338; SOMATOTROPIN\_2; 1.  
 DR Hormone; Pituitary; Signal.  
 FT SIGNAL 1 26 BY SIMILARITY.  
 FT CHAIN 27 216 SOMATOTROPIN.  
 FT DISULFID 78 189 BY SIMILARITY.  
 FT DISULFID 206 214 BY SIMILARITY.  
 FT CONFLICT 4 4 S -> G (IN REF. 1).  
 FT CONFLICT 7 7 N -> T (IN REF. 1).  
 SQ SEQUENCE 216 AA; 24468 MW; A8AD1D59F1DAED CRC64;  
 Query Match 64.7%: Score 440; DB 1; Length 216;  
 Best Local Similarity 66.9%; Pred. No. 6.7e-36;  
 Matches 89; Conservative 16; Mismatches 26; Indels 2; Gaps 2;  
 QY 2 PFTITLPLSLFDNMLRAHRLHQLAFDYQFEERAYIPKECKYSFLONPOTSLSFSESIPPT 61  
 DB 27 PFAMPLSSIFANAVLRAQHLEHLAADYKKEFERAYIPGORYS-IONAQAACFSETIPA 85  
 QY 62 PSNRETOOKSNLELLRLSLILIOSWLEPVQFLRSFANSIYVGASDSNVYDLKDLDEEG 121  
 DB 86 PTKGDEAQRSDVELLRSLILIOSWLGVPQFLSRFTNSLVFGTSD-RVYEKLDLEEG 144  
 QY 122 IOTLMGRLEDEGSP 134  
 DB 145 IQALMRELEDEGSP 157

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RESULT 13
SOMA_FELCA STANDARD: PRT: 216 AA.
ID SOMA_FELCA
AC P46404:
DT 01-NOV-1995 (Rel. 32, Created)
DT 01-NOV-1995 (Rel. 32, Last sequence update)
DT 15-JUL-1999 (Rel. 38, Last annotation update)
DE Somatotropin precursor (Growth hormone).
GN GH1.
OS Felis silvestris catus (Cat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Carnivora; Fissipedia; Felidae; Felis.
OX NCBI_TaxID=9685;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=Pituitary;
RX MEDLINE=96194906; PubMed=8654953;
RA Warren W.C., Bentle K.A., Bogosian G.;
RT "Cloning of the cDNAs coding for cat growth hormone and prolactin.";
RL Gene 168:247-249(1996).
RN [2]
RP SEQUENCE FROM N.A.
RC TISSUE=Pituitary;
RX MEDLINE=95369713; PubMed=7642118;
RA Castro-Peralta F., Barrera-Saldana H.A.;
RT "Cloning and sequencing of cDNA encoding the cat growth hormone.";
RL Gene 160:311-312(1995).
CC -1- FUNCTION: GROWTH HORMONE PLAYS AN IMPORTANT ROLE IN GROWTH
CC CONTROL.
CC -1- SUBCELLULAR LOCATION: Secreted.
CC -1- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.
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CC -----
DR EMBL: U25973; AAA67294.1; -
DR EMBL: U13390; AAA96142.1; -
DR HSSP: P01246; 1BST.
DR InterPro: IPR001400; SOMATOTROPIN.
DR Pfam: PF00103; hormone_1.
DR PRINTS: PR00836; SOMATOTROPIN.
DR PROSITE: PS00266; SOMATOTROPIN_1; 1.
DR PROSITE: PS00388; SOMATOTROPIN_2; 1.
KM Hormone; Pituitary; signal.
FT SIGNAL 1 26 BY SIMILARITY.
FT CHAIN 27 216 SOMATOTROPIN.
FT DISULFID 78 189 BY SIMILARITY.
FT DISULFID 206 214 BY SIMILARITY.
FT CONFLICT 7 7 N -> T (IN REF. 2).
FT CONFLICT 26 26 T -> A (IN REF. 2).
FT CONFLICT 159 159 G -> A (IN REF. 2).
FT CONFLICT 181 181 L -> P (IN REF. 2).
SQ SEQUENCE 216 AA; 24454 MW; 05820239A7D292C6 CRC64;

Query Match 64.7%; Score 440; DB 1; Length 216;
Best Local Similarity 66.9%; Pred. No. 6.7e-36;
Matches 89; Conservative 16; Mismatches 26; Indels 2; Gaps 2;

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QY 122 IQTLMRLDGGSP 134
Db 145 IQALMRLDGGSP 157

RESULT 14
SOMA_PIG STANDARD: PRT: 216 AA.
ID SOMA_PIG
AC P01248; Q28958; Q29045;
DT 21-JUL-1986 (Rel. 01, Created)
DT 01-MAR-1989 (Rel. 10, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Somatotropin precursor (Growth hormone).
GN GH1.
OS Sus scrofa (Pig).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
OX NCBI_TaxID=9823;
RN [1]
RP SEQUENCE FROM N.A.
RC MEDLINE=88030700; PubMed=3666458;
RA Vize P.D., Wells J.R.E.;
RT "Isolation and characterization of the porcine growth hormone gene.";
RL Gene 55:339-344(1987).
RN [2]
RP SEQUENCE FROM N.A.
RX MEDLINE=90212663; PubMed=2182128;
RA Kato Y., Shimokawa N., Kato T., Hirai T., Yoshihama K., Kawai H.,
RA Hattori M.A., Ezashi T., Shimogori Y., Wakabayashi K.;
RT "Porcine growth hormone: molecular cloning of cDNA and expression in
RT bacterial and mammalian cells.";
RL Biochim. Biophys. Acta 1048:290-293(1990).
RN [3]
RP SEQUENCE FROM N.A.
RC TISSUE=Pituitary;
RX MEDLINE=91355590; PubMed=2491309;
RA Qi S.Z., Wang X.Z., Zhou S.W., Jia F., Wang H.Y., Xia L.T., Li J.;
RT "Sequencing of porcine growth hormone cDNA.";
RL Chin. J. Biotechnol. 5:35-39(1989).
RN [4]
RP SEQUENCE OF 27-30 AND 149-216.
RX MEDLINE=70293161; PubMed=4918150;
RA Mills J.B., Howard S.C., Scapa S., Wilhelm A.E.;
RT "Cyanogen bromide cleavage and partial amino acid sequence of porcine
RT growth hormone.";
RL J. Biol. Chem. 245:3407-3415(1970).
RN [5]
RP SEQUENCE OF 7-216 FROM N.A.
RX MEDLINE=63209123; PubMed=6303731;
RA Seeburg P.H., Sias S., Adelman J., De Boer H.A., Hayflick J.,
RA Jhurani P., Goeddel D.V., Heyneker H.L.;
RT "Efficient bacterial expression of bovine and porcine growth
RT hormones.";
RL DNA 2:37-45(1983).
RN [6]
RP SEQUENCE OF 97-158 FROM N.A.
RX MEDLINE=94154153; PubMed=1343826;
RA Yang Q., Zhu B., Zhou S., Qi S.;
RT "Cloning and partial sequencing of the porcine growth hormone (pGH)
RT gene from pituitary gland.";
RL Chin. J. Biotechnol. 8:227-233(1992).
RN [7]
RP SEQUENCE OF 5-57 FROM N.A.
RA Jiang Z.H., Rottmann O.J., Pitchen F.;
RT Submitted (NOV-1996) to the EMBL/Genbank/DBJ databases.
CC -1- FUNCTION: GROWTH HORMONE PLAYS AN IMPORTANT ROLE IN GROWTH
CC CONTROL.
CC -1- SUBCELLULAR LOCATION: Secreted.
CC -1- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.
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DR EMBL: X53325; CAA37411.1; -  
DR EMBL: M17704; AAA31044.1; -  
DR EMBL: U19788; AAA73478.1; ALT\_INIT.  
DR EMBL: M27326; AAA31045.1; -  
DR EMBL: S72386; AAB29947.2; -  
DR EMBL: U73464; AAB17619.1; -  
DR PIR: J00015; STPG.  
DR PIR: A01516; A01516.  
DR HSSP: P01246; 1BST.  
DR InterPro: IPR001400; SOMATOTROPIN.  
DR Pfam: PF00103; hormone; 1.  
DR PRINTS: PR00836; SOMATOTROPIN.  
DR PROSITE: PS00266; SOMATOTROPIN\_1; 1.  
DR PROSITE: PS00338; SOMATOTROPIN\_2; 1.  
DR Hormone; Pituitary; Signal.  
KW SIGNAL.  
FT CHAIN 1 26  
FT DISULFID 27 216  
FT DISULFID 78 189  
FT DISULFID 206 214  
FT CONFLICT 9 9  
FT CONFLICT 22 22  
FT CONFLICT 78 78  
FT CONFLICT 116 116  
FT CONFLICT 195 195  
FT CONFLICT 203 203  
FT CONFLICT 206 206  
SQ SEQUENCE 216 AA; 24429 MW; 0216931D6B76D14 CRC64;

Query Match 64.7%; Score 440; DB 1; Length 216;  
Best Local Similarity 66.9%; Pred. No. 6.7e-36;  
Matches 89; Conservative 16; Mismatches 26; Indels 2; Gaps 2;

QY 2 FFTPLSLFDPNAMLRAHRLHOLAFTDYQFEERAYTPKROKYSFLQNPOTSLSSESISPT 61  
DB 27 FPAPMLSSLFANAVLRAQHHLAADTYKFEERAYIPEDQORS-IQNOQAFCFSETIPA 85  
QY 62 PSNRETOQKSNLLRLATSLILQSWLEPVOFLRSVFANSVLYGASDSNVYDLKDLLEG 121  
DB 86 PTGDEAQQRDVLLRFLSLILQSWLGGPVQFLRSVFTSLVFGTSD-RVYEKLKDLLEG 144  
QY 122 IOTLMGRLEDCSP 134  
DB 145 IQALMQELEDCSP 157

RESULT 15  
SOMA\_MOUSE  
ID SOMA\_MOUSE STANDARD: PRT: 216 AA.  
AC P06880;  
DT 01-JAN-1988 (Rel. 06, Created)  
DT 01-JAN-1988 (Rel. 06, Last sequence update)  
DT 15-JUL-1998 (Rel. 36, Last annotation update)  
DE Somatotropin precursor (Growth hormone).  
GN GH1 OR GH.  
OS Mus musculus (Mouse).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.  
OX NCBI\_TaxID=10090;  
RN [1]  
RP SEQUENCE FROM N.A.  
RX MEDLINE=65261358; PubMed=2991252;  
RA Linzer D.I.H., Talamantes F.;  
RT "Nucleotide sequence of mouse prolactin and growth hormone mRNAs and  
RL expression of these mRNAs during pregnancy.";  
J. Biol. Chem. 260:9574-9579(1985).  
[2]

RP SEQUENCE FROM N.A.  
RC STRAIN=FZTND; TISSUE=Liver;  
RX MEDLINE=96194803; PubMed=8647448;  
RA Das P., Meyer L., Seyfert H.-M., Brockmann G., Schwerin M.;  
RT "Structure of the growth hormone-encoding gene and its promoter in  
RT mice.";  
Gene 169:209-213(1996).  
CC -! FUNCTION: GROWTH HORMONE PLAYS AN IMPORTANT ROLE IN GROWTH  
CC CONTROL.  
CC -! SUBCELLULAR LOCATION: secreted.  
CC -! SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.

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DR EMBL: X02891; CAA26650.1; -  
DR EMBL: Z46663; CAA86658.1; -  
DR PIR: B23911; STWS.  
DR HSSP: P01246; 1BST.  
DR MGD: MGI:95707; Gh.  
DR InterPro: IPR001400; SOMATOTROPIN.  
DR Pfam: PF00103; hormone; 1.  
DR PRINTS: PR00836; SOMATOTROPIN.  
DR PROSITE: PS00266; SOMATOTROPIN\_1; 1.  
DR PROSITE: PS00338; SOMATOTROPIN\_2; 1.  
KW Hormone; Pituitary; Signal.  
FT SIGNAL 1 26  
FT CHAIN 27 216  
FT DISULFID 78 189  
FT DISULFID 206 214  
SQ SEQUENCE 216 AA; 24716 MW; 98666A3AE25D65FC CRC64;

Query Match 64.6%; Score 439; DB 1; Length 216;  
Best Local Similarity 65.4%; Pred. No. 8.4e-36;  
Matches 87; Conservative 18; Mismatches 26; Indels 2; Gaps 2;

QY 2 FFTPLSLFDPNAMLRAHRLHOLAFTDYQFEERAYTPKROKYSFLQNPOTSLSSESISPT 61  
DB 27 FPAPMLSSLFANAVLRAQHHLAADTYKFEERAYIPEDQORS-IQNOQAFCFSETIPA 85  
QY 62 PSNRETOQKSNLLRLATSLILQSWLEPVOFLRSVFANSVLYGASDSNVYDLKDLLEG 121  
DB 86 PTGDEAQQRDVLLRFLSLILQSWLGGPVQFLRSVFTSLVFGTSD-RVYEKLKDLLEG 144  
QY 122 IOTLMGRLEDCSP 134  
DB 145 IQALMQELEDCSP 157

Search completed: September 25, 2002, 09:59:52  
Job time: 166 sec





GenCore version 4.5  
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OM protein - protein search, using sw model

Run on: September 25, 2002, 09:57:01 ; Search time 42.97 Seconds

(without alignments)  
539,477 Million cell updates/sec

Title: US-09-819-094-24

Perfect score: 680  
Sequence: 1 MFPTIPLSRLFDNMLRAHR.....LKDEBGIQTLGKLEDDSP 134

Scoring table: BIOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 562222 seqs, 172994929 residues

Total number of hits satisfying chosen parameters: 562222

Minimum DB seq length: 0

Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%

Maximum Match 100%  
Listing first 45 summaries

Database :

SPTREMBL\_19:\*  
1: sp\_archaea:\*  
2: sp\_bacteria:\*  
3: sp\_fungi:\*  
4: sp\_human:\*  
5: sp\_invertebrate:\*  
6: sp\_mammal:\*  
7: sp\_mhc:\*  
8: sp\_organelle:\*  
9: sp\_phage:\*  
10: sp\_plant:\*  
11: sp\_rodent:\*  
12: sp\_virus:\*  
13: sp\_vertebrate:\*  
14: sp\_unclassified:\*  
15: sp\_virus:\*  
16: sp\_bacteriap:\*  
17: sp\_archaeap:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	664	97.6	217	4	Q16631 homo sapien
2	570	83.8	245	4	Q14644 homo sapien
3	558	82.1	217	6	Q07369 macaca mula
4	550	80.9	212	6	Q07368 macaca mula
5	550	80.9	217	6	Q07367 macaca mula
6	548	80.6	217	4	Q14407 homo sapien
7	517.5	76.1	202	4	Q14643 homo sapien
8	470	66.1	171	4	Q9UNF5 homo sapien
9	452	66.5	167	4	P78451 homo sapien
10	448	65.9	179	4	Q9H821 homo sapien
11	434	63.8	216	11	Q70615 spalax leuc
12	433	63.7	216	11	Q9R2C3 mus muscul
13	433	63.7	216	11	Q9JRM4 cavia porce
14	423	62.2	190	11	Q9JRM4 cavia porce
15	419	61.6	192	6	Q9TUT1 capra hircu
16	419	61.6	217	6	Q28957 sus scrofa

17	418	61.5	192	6	Q9TOW9	Q9TOW9 bos indicus
18	417	61.3	204	6	Q95205	Q95205 ovis aries
19	412	60.6	217	6	Q9BEC0	Q9BEC0 tragulus ja
20	412	60.6	217	6	Q9BEB9	Q9BEB9 tragulus ja
21	404	59.4	143	6	Q95240	Q95240 canis famill
22	404	59.4	178	6	Q95M66	Q95M66 tarsius syr
23	395	58.1	178	6	Q95MJ5	Q95MJ5 tarsius ban
24	390	57.4	199	4	Q14406	Q14406 homo sapien
25	371	54.6	145	6	Q9BDR4	Q9BDR4 galago cras
26	366.5	53.9	218	13	Q9PU72	Q9PU72 cynops pyrr
27	339	45.9	195	13	Q91386	Q91386 amia calva
28	273.5	40.2	110	6	Q9N265	Q9N265 bos taurus
29	216	31.8	187	13	Q9BSR8	Q9BSR8 megalobrama
30	216	31.8	188	13	Q98T74	Q98T74 megalobrama
31	216	31.8	188	13	Q90283	Q90283 carassius a
32	216	31.8	210	13	Q90201	Q90201 mylopharyng
33	215	31.6	210	13	Q91056	Q91056 hypophthalm
34	211	31.0	188	13	Q90W27	Q90W27 carassius a
35	211	31.0	188	13	Q90W26	Q90W26 carassius a
36	210	30.9	188	13	Q9SR7	Q9SR7 cyprinus ca
37	201.5	29.6	120	6	Q9TSG0	Q9TSG0 ovis aries
38	199.5	29.3	140	13	Q90WE4	Q90WE4 gallus gall
39	193	28.4	210	13	Q90W30	Q90W30 citrinus m
40	193	28.4	211	13	Q9W798	Q9W798 catia catia
41	192	28.2	210	13	Q90W77	Q90W77 catia catia
42	161	23.7	45	6	Q9TWF9	Q9TWF9 ovis aries
43	159.5	23.5	52	6	Q9TV91	Q9TV91 equus cabal
44	150	22.1	210	13	Q91160	Q91160 oncorhynch
45	145	21.3	207	13	Q9PSN4	Q9PSN4 sparus aura

## ALIGNMENTS

RESULT 1  
Q16631 PRELIMINARY: PRT: 217 AA.  
ID Q16631; Q14405; (TREMBLrel. 01, Created)  
AC Q16631; Q14405; (TREMBLrel. 01, Last sequence update)  
DT 01-NOV-1996 (TREMBLrel. 01, Last sequence update)  
DT 01-DEC-2001 (TREMBLrel. 19, Last annotation update)  
DE GROWTH HORMONE.  
OS Homo sapiens (Human).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  
OX NCBI\_TaxID=9606;  
RN [1]  
RP SEQUENCE FROM N.A.  
RX MEDLINE-82014939; PubMed-6269091;  
RA Denoto F.M., Moore D.D., Goodman H.M.;  
RT "Human growth hormone DNA sequence and mRNA structure: possible  
RT alternative splicing.";  
RL Nucleic Acids Res. 9:3719-3730(1981).  
RN [2]  
RP SEQUENCE FROM N.A.  
RX MEDLINE-84057143; PubMed-6357679;  
RA Adelman J.P., Hayflick J.S., Vasser M., Seeburg P.H.;  
RT "In vitro deletional mutagenesis for bacterial production of the  
RT 20,000-dalton form of human pituitary growth hormone.";  
RL DNA 2:183-193(1983).  
DR EMBL: V00520; CAA23779.1; -.  
DR HSSP: P01241; IHGU.  
DR InterPro: IPR001400; SOMATOTROPIN.  
DR Pfam: PF00103; hormone\_1.  
DR PRINTS: PR000836; SOMATOTROPIN.  
DR PROSITE: PS00266; SOMATOTROPIN\_1; 1.  
DR PROSITE: PS00358; SOMATOTROPIN\_2; 1.  
SQ SEQUENCE 217 AA; 24803 MW; CCC4DB1150D908AC CRC64;

Query Match 97.6%; Score 664; DB 4; Length 217;  
Best Local Similarity 98.5%; Pred. No. 2.8e-57;  
Matches 131; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 2 PFTPLSLRFLDNAMLRARHLQALAFDTYQEFEEAYIPKEOKYSFLONPOTSLSFSESIP 61  
 DB 27 PFTPLSLRFLDNAMLRARHLQALAFDTYQEFEEAYIPKEOKYSFLONPOTSLSFSESIP 86  
 QY 62 PSNRETOOKSNLELRLRSLILSIOSWLEPVOFLRSVFANSVLYGASPSNNYDLKDLERG 121  
 DB 87 PSNRETOOKSNLELRLRSLILSIOSWLEPVOFLRSVFANSVLYGASPSNNYDLKDLERG 146  
 QY 122 IOTLMGRLEDGSP 134  
 DB 147 IOTLMGRLEDGSP 159

RESULT 2  
 ID 014644 PRELIMINARY; PRT; 245 AA.  
 AC 014644.  
 DT 01-JAN-1998 (TREMBLrel. 05, Last sequence update)  
 DT 01-JAN-1998 (TREMBLrel. 05, Last sequence update)  
 DE 01-DEC-2001 (TREMBLrel. 19, Last annotation update)  
 GN PLACENTAL GROWTH HORMONE ISOFORM HGH-V3 PRECURSOR.  
 OS HGH-V.  
 OS Homo sapiens (Human).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.  
 OX NCBI\_TaxID=9606;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=FULL-TERM PLACENTA;  
 RX MEDLINE=96373737; PubMed=9709963;  
 RA Boguszewski C.L., Svensson P.A., Jansson T., Clark R.,  
 RA Carlsson L.M.S., Carlsson B.,  
 RT "Cloning of two novel growth hormone transcripts expressed in human  
 RT placenta."  
 RL J. Clin. Endocrinol. Metab. 83:2878-2885(1998).  
 DR EMBL: AF006061; AAB71829.1;  
 DR HSSP: P01241; 1A22.  
 DR InterPro: IPR001400; SOMATOTROPIN.  
 DR Pfam: PF00103; hormone.1.  
 DR PROSITE: PS00266; SOMATOTROPIN\_1; 1.  
 KW Signal.  
 FT SIGNAL 1 26 POTENTIAL.  
 SQ SEQUENCE 245 AA; 27101 MW; 14CC7F8CD75D91C8 CRC64;

Query Match 83.8%; Score 570; DB 4; Length 245;  
 Best Local Similarity 91.3%; Pred. No. 5.2e-48;  
 Matches 115; Conservative 4; Mismatches 7; Indels 0; Gaps 0;

QY 2 PFTPLSLRFLDNAMLRARHLQALAFDTYQEFEEAYIPKEOKYSFLONPOTSLSFSESIP 61  
 DB 27 PFTPLSLRFLDNAMLRARHLQALAFDTYQEFEEAYIPKEOKYSFLONPOTSLSFSESIP 86  
 QY 62 PSNRETOOKSNLELRLRSLILSIOSWLEPVOFLRSVFANSVLYGASPSNNYDLKDLERG 121  
 DB 87 PSNRETOOKSNLELRLRSLILSIOSWLEPVOFLRSVFANSVLYGASPSNNYDLKDLERG 146  
 QY 122 IOTLMGRLEDGSP 134  
 DB 147 IOTLMGRLEDGSP 159

RESULT 3  
 ID 007369 PRELIMINARY; PRT; 217 AA.  
 AC 007369.  
 DT 01-NOV-1996 (TREMBLrel. 01, Created)  
 DT 01-NOV-1996 (TREMBLrel. 01, Last sequence update)  
 DE 01-DEC-2001 (TREMBLrel. 19, Last annotation update)  
 GN SOMATOTROPIN 3 PRECURSOR (GROWTH HORMONE 3).  
 OS Macaca mulatta (Rhesus macaque).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

CC Mammalia; Eutheria; Primates; Catarrhini; Cercopitheidae;  
 OC Cercopitheidae; Macaca.  
 OX NCBI\_TaxID=9544;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=PLACENTA;  
 RX MEDLINE=94008724; PubMed=8404617;  
 RA Golos T.G., Durning M., Fisher J.M., Fowler P.D.;  
 RT "Cloning of four growth hormone/chorionic somatomotropin-related  
 RT complementary deoxyribonucleic acids differentially expressed during  
 RT pregnancy in the rhesus monkey placenta."  
 RL Endocrinology 133:1744-1752(1993).  
 CC -1- FUNCTION: GROWTH HORMONE PLAYS AN IMPORTANT ROLE IN GROWTH  
 CC CONTROL.  
 CC -1- SUBCELLULAR LOCATION: SECRETED.  
 CC -1- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.  
 DR EMBL: L16554; AAI18841.1; -.  
 DR HSSP: P01241; 1AXI.  
 DR InterPro: IPR001400; SOMATOTROPIN.  
 DR Pfam: PF00103; hormone.1.  
 DR PRINTS: PR00836; SOMATOTROPIN.  
 DR PROSITE: PS00266; SOMATOTROPIN\_1; 1.  
 DR PROSITE: PS00338; SOMATOTROPIN\_2; UNKNOWN\_1.  
 KW Pituitary; Hormone; Signal.  
 FT SIGNAL 1 2  
 FT CHAIN 1 217 SOMATOTROPIN 3.  
 FT DISULEID 79 191 BY SIMILARITY.  
 FT DISULEID 208 215 BY SIMILARITY.  
 SQ SEQUENCE 217 AA; 24874 MW; F1EB6AFDBA1B185 CRC64;

Query Match 82.1%; Score 558; DB 6; Length 217;  
 Best Local Similarity 81.1%; Pred. No. 6.7e-47;  
 Matches 107; Conservative 13; Mismatches 12; Indels 0; Gaps 0;

QY 3 PFTPLSLRFLDNAMLRARHLQALAFDTYQEFEEAYIPKEOKYSFLONPOTSLSFSESIP 62  
 DB 28 PSVPLSLRFLDNAMLRARHLQALAFDTYQEFEEAYIPKEOKYSFLONPOTSLSFSESIP 87  
 QY 63 PSNRETOOKSNLELRLRSLILSIOSWLEPVOFLRSVFANSVLYGASPSNNYDLKDLERG 122  
 DB 88 PSNRETOOKSNLELRLRSLILSIOSWLEPVOFLRSVFANSVLYGASPSNNYDLKDLERG 147  
 QY 123 IOTLMGRLEDGSP 134  
 DB 148 IOTLMGRLEDGSP 159

RESULT 4  
 ID 007368 PRELIMINARY; PRT; 212 AA.  
 AC 007368.  
 DT 01-NOV-1996 (TREMBLrel. 01, Created)  
 DT 01-NOV-1996 (TREMBLrel. 01, Last sequence update)  
 DE 01-DEC-2001 (TREMBLrel. 19, Last annotation update)  
 GN SOMATOTROPIN 2 PRECURSOR (GROWTH HORMONE 2) (FRAGMENT).  
 OS Macaca mulatta (Rhesus macaque).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Primates; Catarrhini; Cercopitheidae;  
 OC Cercopitheidae; Macaca.  
 OX NCBI\_TaxID=9544;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=PLACENTA;  
 RX MEDLINE=94008724; PubMed=8404617;  
 RA Golos T.G., Durning M., Fisher J.M., Fowler P.D.;  
 RT "Cloning of four growth hormone/chorionic somatomotropin-related  
 RT complementary deoxyribonucleic acids differentially expressed during  
 RT pregnancy in the rhesus monkey placenta."  
 RL Endocrinology 133:1744-1752(1993).  
 CC -1- FUNCTION: GROWTH HORMONE PLAYS AN IMPORTANT ROLE IN GROWTH  
 CC CONTROL.  
 CC -1- SUBCELLULAR LOCATION: SECRETED.



RESULT	5			
007367				
ID	007367	PRELIMINARY;	PRT;	217 AA.
AC	007367;			
DT	01-NOV-1996 (TREMBLrel. 01, Created)			
DT	01-NOV-1996 (TREMBLrel. 01, Last sequence update)			
DT	01-DEC-2001 (TREMBLrel. 19, Last annotation update)			
DE	SOMATOTROPIN 1 PRECURSOR (GROWTH HORMONE 1).			
OS	Macaca mulatta (Rhesus macaque).			
OC	Eukaryota; Metazoa; Chordata; Crinata; Vertebrata; Euteleostomi;			
OC	Mammalia; Eutheria; Primates; Catarrhini; Cercopitheciidae;			
OC	Cercopitheciinae; Macaca.			
OX	NCBI_TaxID=9544;			
RN	[1]			
RP	SEQUENCE FROM N.A.			
RC	TISSUE=PLACENTA;			
RX	MEDLINE-94008724; PubMed-8404617;			
RA	Gelos T.G., Durning M., Fisher J.M., Fowler P.D.;			
RT	"Cloning of four growth hormone/chorionic somatomotropin-related			
RT	complementary deoxyribonucleic acids differentially expressed during			
RT	pregnancy in the rhesus monkey placenta.";			
RL	Endocrinology 133:1744-1752(1993).			
CC	-1- FUNCTION: GROWTH HORMONE PLAYS AN IMPORTANT ROLE IN GROWTH			
CC	CONTROL.			
CC	-1- SUBCELLULAR LOCATION: SECRETED.			
CC	-1- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.			
DR	EMBL: L16552; AAA18839.1; '-'			
DR	HSSP: P01241; IAXI.			
DR	InterPro: IPR001400; SOMATOTROPIN.			
DR	Pfam: PF00103; hormone, 1.			
DR	PRINTS: PR00836; SOMATOTROPIN.			
DR	PROSITE: PS00338; SOMATOTROPIN_2; UNKNOWN_1.			
KW	Pituitary; Hormone; Signal.			
FT	SIGNAL	1	?	
FT	CHAIN	?	217	SOMATOTROPIN 1.
FT	DISULFID	79	191	BY SIMILARITY.
FT	DISULFID	208	215	BY SIMILARITY.
QO	SEQUENCE	217 AA;	24942 MW;	PF5AAB8915131F2BC CRC64;

DT 01-NOV-1996 (TREMBLrel. 01, Created)  
DT 01-NOV-1996 (TREMBLrel. 01, last sequence update)  
DT 01-DEC-2001 (TREMBLrel. 19, last annotation update)  
DE CHORIONIC SOMATOMAMOTROPIN CS-2.  
OS Homo sapiens (Human).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.  
OX NCBI\_TaxId=9606;  
RN [1]  
RP SEQUENCE FROM N.A.  
RX MEDLINE=89307277; PubMed=2744760;  
RA Chen E.Y., Liao Y.C., Smith D.H., Barrera-Saldana H.A., Gellinas R.E.,  
RA Seeburg P.H.;  
RT "The human growth hormone locus: nucleotide sequence, biology, and  
RT evolution".  
RL Genomics 4:479-497 (1989).  
RN [2]  
RP SEQUENCE FROM N.A.  
RX MEDLINE=91102558; PubMed=1980158;  
RA Vennart-Jones C.L., Phillips J.A. III;  
RT "hot spots for growth hormone gene deletions in homologous regions  
RT outside of Alu repeats".  
RL Science 250:1745-1748 (1990).  
DR EMBL: J03071; AAA52553.1; -.  
DR HSSP: P01241; 1A22.  
DR InterPro: IPR001400; SOMATOTROPIN.  
DR Pfam: PF00103; hormone. 1.  
DR PRINTS: PR00836; SOMATOTROPIN.  
DR PROSITE: PS00286; SOMATOTROPIN\_1. 1.  
DR PROSITE: PS00348; SOMATOTROPIN\_2. 1.  
SO SEQUENCE 217 AA; 24994 MW; 39FAACDDB6B2E951 CRC64;

QY	4	TIPSLFDPNAMIKAHRLHQALFDIYGFEEFAVIPIKOKTSFIQNQTLSLSSSEITPPS	63
Dd	29	TVPLSRFLDHAMLOAHRAHQIALDIYGFEEFTVPIPKOKTSFLHDOSYFCRSPDTPPS	88
QY	64	NRETOOKSNLELLRISILLIOSWLEPVQIFRSVFANSIYYGASDSNYDLKLDEBSIQ	123
Dd	89	NMEETOOKSNLELLRISILLIESWLEPREFRSFMFNMLLYDFSDSDYHLKLDEEIQ	148
QY	124	TLMGRLDDGS	133
Dd	149	TLMGRLDDGS	158

7	RESULT
	014643

ID 014643 PRELIMINARY; PRT; 202 AA.  
AC 014643;  
DT 01-JAN-1998 (Tremblrel. 05, last sequence update)  
DT 01-JAN-1998 (Tremblrel. 05, last sequence update)  
DE 01-DEC-2001 (Tremblrel. 19, last annotation update)  
DE PLACENTAL GROWTH HORMONE 20KDA ISOFORM PRECURSOR.  
GN HGH-V.  
OS Homo sapiens (Human).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.  
OX NCBI\_TaxID=9606;  
RN [1]  
RP SEQUENCE FROM N.A.  
RC TISSUE=FULL-TERM PLACENTA;  
RX MEDLINE=98373737; PubMed=9709963;  
RA Boguszewski C.L., Svensson P.A., Jansson T., Clark R.,  
RT Carlsson L.M.S., Carlsson B.;  
RT "Cloning of two novel growth hormone transcripts expressed in human placenta."  
RT J. Clin. Endocrinol. Metab. 83:2878-2885(1998).  
DR EMBL: AF006060; AAB71828.1; -  
DR HSSP: P01241; 1A22  
DR InterPro: IPR001400; SOMATOTROPIN.  
DR Pfam: PF00103; hormone; 2.  
DR PRINTS: PR00836; SOMATOTROPIN.  
DR PROSITE: PS00266; SOMATOTROPIN\_1; 1.  
DR PROSITE: PS00338; SOMATOTROPIN\_2; 1.  
KM SIGNAL.  
FT SIGNAL. 1 26 POTENTIAL.  
SQ SEQUENCE 202 AA; 23128 MW; 38864D01A9197C6 CRC64;

Query Match 76.1%; Score 517.5; DB 4; Length 202;  
Best Local Similarity 81.2%; Pred. No. 5.6e-43;  
Matches 108; Conservative 3; Mismatches 7; Indels 15; Gaps 1;

QY 2 FPTPLSRFDNAMLRAHRLHQLAFDTYQEFEEAVYIPKEOKYSFLONPQTSLSSESIP 61  
DB 27 FPTPLSRFDNAMLRAHRLHQLAFDTYQEFEEAVYIPKEOKYSFLONPQTSLSSESIP 71  
QY 62 PSNRETOOKSNLELRISLLIOSMLEPVOFLNSVFANSVYGASDSNVYRLKDLERG 121  
DB 72 PSNRETOOKSNLELRISLLIOSMLEPVOFLNSVFANSVYGASDSNVYRLKDLERG 131  
QY 122 IQTLMGRLEDGSP 134  
DB 132 IQTLMGRLEDGSP 144  
RESULT 8  
Q9UNL5 PRELIMINARY; PRT; 171 AA.  
AC Q9UNL5;  
DT 01-MAY-2000 (Tremblrel. 13, Created)  
DT 01-MAY-2000 (Tremblrel. 13, last sequence update)  
DE 01-DEC-2001 (Tremblrel. 19, last annotation update)  
DE GROWTH HORMONE SPLICE VARIANT.  
OS Homo sapiens (Human).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.  
OX NCBI\_TaxID=9606;  
RN [1]  
RP SEQUENCE FROM N.A.  
RC TISSUE=PLUTARY;  
RA Song H., Peng Y., Dai M., Huang Q., Mao Y., Zhang Q., Mao M., Fu G.,  
RT Luo M., Chen J., Hu R.;  
RT "Human growth hormone variant splicing gene."  
RT Submitted (DEC-1998) to the EMBL/Genbank/DBJ databases.  
RL EMBL: AF110644; AAD46584.1; -  
DR HSSP: P01241; 1A21.  
DR InterPro: IPR001400; SOMATOTROPIN.  
DR Pfam: PF00103; hormone; 2.  
DR PRINTS: PR00836; SOMATOTROPIN.

DR PROSITE: PS00266; SOMATOTROPIN\_1; 1.  
DR PROSITE: PS00338; SOMATOTROPIN\_2; 1.  
SQ SEQUENCE 171 AA; 19801 MW; 9FA9013991FA9F28 CRC64;

Query Match 69.1%; Score 470; DB 4; Length 171;  
Best Local Similarity 70.3%; Pred. No. 2.1e-38;  
Matches 97; Conservative 9; Mismatches 12; Indels 20; Gaps 3;

QY 2 FPTPLSRFDNAMLRAHRLHQLAFDTYQEFEEAVYIPKEOKYSFLONPQTSLSSESIP 61  
DB 27 FPTPLSRFDNAMLRAHRLHQLAFDTYQEFEEAVYIPKEOKYSFLONPQTSLSSESIP 86  
QY 62 PSNRETOOKSNLELRISLLIOSMLEPVOFLNSVFANSVYGASDSNVYRLKDLERG 110  
DB 87 PSNRETOOKSNLELRISLLIOSMLEPVOFLNSVFANSVYGASDSNVYRLKDLERG 140  
QY 111 --VYDLKDLDEGIQTL 126  
DB 141 GLYCFRRDMOK-VETFL 157

RESULT 9  
P78451 PRELIMINARY; PRT; 167 AA.  
ID P78451;  
AC P78451;  
DT 01-MAY-1997 (Tremblrel. 03, Created)  
DT 01-MAY-1997 (Tremblrel. 03, last sequence update)  
DE 01-DEC-2001 (Tremblrel. 19, last annotation update)  
DE SOMATOMAMOTROPIN (CHORIONIC SOMATOMAMOTROPIN) (HCS) (FRAGMENT).  
OS Homo sapiens (Human).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.  
OX NCBI\_TaxID=9606;  
RN [1]  
RP SEQUENCE FROM N.A.  
RX MEDLINE=78071761; PubMed=593368;  
RA Shine J., Seeburg P.H., Martial J.A., Baxter J.D., Goodman H.M.;  
RT "Construction and analysis of recombinant DNA for human chorionic somatomamotrophin."  
RT Nature 270:494-499(1977).  
RN [2]  
RP SEQUENCE OF 110-167 FROM N.A.  
RX MEDLINE=78160787; PubMed=611657;  
RA Seeburg P.H., Shine J., Martial J.A., Ulrich A., Goodman H.M.,  
RA Baxter J.D.;  
RT "Nucleotide sequence of a human gene coding for a polypeptide hormone."  
RL Trans. Assoc. Am. Physicians 90:109-116(1977).  
DR EMBL: V00593; CA23840.1; -  
DR EMBL: M25118; AAA35721.1; -  
DR HSSP: P01241; 1A22.  
DR InterPro: IPR001400; SOMATOTROPIN.  
DR Pfam: PF00103; hormone; 1.  
DR PRINTS: PR00836; SOMATOTROPIN.  
DR PROSITE: PS00266; SOMATOTROPIN\_1; 1.  
DR PROSITE: PS00338; SOMATOTROPIN\_2; 1.  
KM NON-TER.  
FT NON-TER.  
SQ SEQUENCE 167 AA; 19586 MW; 6EC7829D3938E976 CRC64;

Query Match 66.5%; Score 452; DB 4; Length 167;  
Best Local Similarity 83.2%; Pred. No. 1.2e-36;  
Matches 89; Conservative 8; Mismatches 10; Indels 0; Gaps 0;

QY 27 DTYOEEFEEAVYIPKEOKYSFLONPQTSLSSESIPPSNRETOOKSNLELRISLLIOS 86  
DB 2 DTYOEEFEEAVYIPKEOKYSFLONPQTSLSSESIPPSNRETOOKSNLELRISLLIOS 61  
QY 87 WLEPVOFLNSVFANSVYGASDSNVYDLKDLDEGIQTLKGRLEDGS 133  
DB 62 WLEPVOFLNSVFANSVYGASDSNVYDLKDLDEGIQTLKGRLEDGS 108

[illegible]

DT 01-OCT-2000 (TREMBlrel. 15, last sequence update)  
DT 01-DEC-2001 (TREMBlrel. 19, last annotation update)  
DE GROWTH HORMONE PRECURSOR.  
OS Cavia porcellus (Guinea pig).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Rodentia; Hystriocognathi; Cavidae; Cavia.  
OX NCBI\_TaxID=10141;  
RN [1]  
RP SEQUENCE FROM N.A.  
RA Olorico D.M., Fuller P.J., Herington A.C.;  
RT "Cloning and sequence of guinea pig growth hormone (GH).";  
RL Submitted (FEB-2000) to the EMBL/GenBank/DBJ databases.  
DR EMBL; AF233853; AAF6409.1; -  
DR HSSP; P01246; 1BST.  
DR InterPro: IPR001400; SOMATOTROPIN.  
DR Pfam: PF00103; hormone.1.  
DR PRINTS: PR00836; SOMATOTROPIN.  
DR PROSITE: PS00266; SOMATOTROPIN\_1; 1.  
DR PROSITE: PS00338; SOMATOTROPIN\_2; UNKNOWN\_1.  
KW Signal.  
FT CHAIN 1 26 POTENTIAL.  
FT SIGNAL 27 216 GROWTH HORMONE.  
SQ SEQUENCE 216 AA; 24822 MW; 45966BE119B0BD3 CRC64;

Query Match 63.7%; Score 433; DB 11; Length 216;  
Best Local Similarity 65.4%; Pred. No. 1.1e-34;  
Matches 87; Conservative 17; Mismatches 27; Indels 2; Gaps 2;

QY 2 FFTPLSLRFDNAMLRAHLHQLAFPTYQFEFEAYIKKQKYSFLQNPOTSLSFSSEIPT 61  
DB 27 FPMPLSSSLFGNAVLRAQHLHQLADPTKFEFRTYIPKQKYS-ITHNQTAFCSFETIPA 85  
QY 62 PSNRETOQKSNLELRISLLIOSWLEVPQFLRSVFANSIYVYGSNSVYDLKDLDEEG 121  
DB 86 PDKKEAQQKSDVLELHSLILSIQSWLGPVQFLSRVFTNSLVFGTSD-RVYEKLDLEEG 144  
QY 122 IQTLMGRLDGGSP 134  
DB 145 IQALMRELEDGTP 157  
RESULT 14  
Q9JRG0 PRELIMINARY; PRT; 190 AA.  
AC Q9JRG0;  
DT 01-OCT-2000 (TREMBlrel. 15, Created)  
DT 01-OCT-2000 (TREMBlrel. 15, last sequence update)  
DT 01-DEC-2001 (TREMBlrel. 19, last annotation update)  
DE GROWTH HORMONE (FRAGMENT).  
OS Cavia porcellus (Guinea pig).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Rodentia; Hystriocognathi; Cavidae; Cavia.  
OX NCBI\_TaxID=10141;  
RN [1]  
RP SEQUENCE FROM N.A.  
RA MEDLINE-20231762; PubMed-10767558;  
RA Adkins R.M., Vandenberg J., Li W.H.;  
RT "Molecular evolution of growth hormone and receptor in the guinea-pig,  
a mammal unresponsive to growth hormone.";  
RL Gene 246:357-363(2000).  
DR EMBL; AF238493; AAF67172.1; -  
DR HSSP; P01246; 1BST.  
DR InterPro: IPR001400; SOMATOTROPIN.  
DR Pfam: PF00103; hormone.1.  
DR PRINTS: PR00836; SOMATOTROPIN.  
DR PROSITE: PS00266; SOMATOTROPIN\_1; 1.  
DR PROSITE: PS00338; SOMATOTROPIN\_2; UNKNOWN\_1.  
FT NON\_TER 1 1  
SQ SEQUENCE 190 AA; 21962 MW; 6A0394FC5E707BE8 CRC64;

Query Match 62.2%; Score 423; DB 11; Length 190;

Best Local Similarity 63.9%; Pred. No. 9.3e-34;  
Matches 85; Conservative 17; Mismatches 29; Indels 2; Gaps 2;  
QY 2 FFTPLSLRFDNAMLRAHLHQLAFPTYQFEFEAYIKKQKYSFLQNPOTSLSFSSEIPT 61  
DB 1 FPMPLSSSLFGNAVLRAQHLHQLADPTKFEFRTYIPKQKYS-ITHNQTAFCSFETIPA 59  
QY 62 PSNRETOQKSNLELRISLLIOSWLEVPQFLRSVFANSIYVYGSNSVYDLKDLDEEG 121  
DB 60 PDKKEAQQKSDVLELHSLILSIQSWLGPVQFLSRVFTNSLVFGTSD-RVYEKLDLEEG 118  
QY 122 IQTLMGRLDGGSP 134  
DB 119 IQALMRELEDGTP 131

RESULT 15  
Q9TU21 PRELIMINARY; PRT; 192 AA.  
AC Q9TU21;  
DT 01-MAY-2000 (TREMBlrel. 13, Created)  
DT 01-MAY-2000 (TREMBlrel. 13, last sequence update)  
DT 01-JUN-2001 (TREMBlrel. 17, last annotation update)  
DE GROWTH HORMONE.  
OS Capra hircus (Goat).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;  
OX Bovidae; Caprine; Capra.  
OX NCBI\_TaxID=9925;  
RN [1]  
RP SEQUENCE FROM N.A.  
RA STRAIN-INDIAN BEETAL;  
RC Mukhopadhyay U.K., Sahni G.;  
RT "Indian goat growth hormone cDNA.";  
RL Submitted (AUG-1999) to the EMBL/GenBank/DBJ databases.  
DR EMBL; AF177287; AAF03130.1; -  
DR HSSP; P01246; 1BST.  
DR InterPro: IPR001400; SOMATOTROPIN.  
DR Pfam: PF00103; hormone.1.  
DR PRINTS: PR00836; SOMATOTROPIN.  
DR PROSITE: PS00266; SOMATOTROPIN\_1; 1.  
DR PROSITE: PS00338; SOMATOTROPIN\_2; 1.  
SQ SEQUENCE 192 AA; 21977 MW; A5A6977B607F31BA CRC64;

Query Match 61.6%; Score 419; DB 6; Length 192;  
Best Local Similarity 64.7%; Pred. No. 2.3e-33;  
Matches 86; Conservative 16; Mismatches 29; Indels 2; Gaps 2;

QY 2 FFTPLSLRFDNAMLRAHLHQLAFPTYQFEFEAYIKKQKYSFLQNPOTSLSFSSEIPT 61  
DB 3 FPMPLSSSLFGNAVLRAQHLHQLADPTKFEFRTYIPKQKYS-ITHNQTAFCSFETIPA 61  
QY 62 PSNRETOQKSNLELRISLLIOSWLEVPQFLRSVFANSIYVYGSNSVYDLKDLDEEG 121  
DB 62 PDKKEAQQKSDVLELHSLILSIQSWLGPVQFLSRVFTNSLVFGTSD-RVYEKLDLEEG 120  
QY 122 IQTLMGRLDGGSP 134  
DB 121 IQALMRELEDGTP 133

Search completed: September 25, 2002, 09:59:30  
Job time: 149 sec

Wed Sep 25 10:41:48 2002

us-09-819-094-24.ispt

Page 7





Pt Maternal UA, Struman I, Taylor R, Weiner RI;  
DR WPI: 1999-045192/04.  
XX N-PsDB; AAX01711.

Pt New anti-angiogenic peptides - comprise N-terminal fragments of  
PT human placental lactogen, human growth hormone, growth hormone  
PR variant or human prolactin

PS Claim 5; Page 52; 87pp; English.

XX This invention describes novel human anti-angiogenic peptides derived  
CC from 10 to 150 consecutive amino acids selected from the N-terminal end  
CC of human placental lactogen (hPL), human growth hormone (hGH), growth  
CC hormone variant (hgh-V), or human prolactin. Such peptides (i) inhibit  
CC capillary endothelial cell proliferation and organisation (ii) inhibit  
CC angiogenesis in chick chorioallantoic membrane and (iii) binds to at  
CC least one specific receptor which does not bind an intact full length  
CC hGH, hPL, prolactin or hgh-V. The invention also describes a method for  
CC diagnosing a probable abnormality of placental vasculatisation during  
CC pregnancy. The peptides can be used for treating an angiogenic disease in  
CC a subject, for inhibiting tumour formation or growth in a patient or for  
CC modulating vascularisation of a patient's placenta. In particular, the  
CC peptides can be used for preventing or treating e.g. malignant tumours,  
CC angiofibroma, arteriovenous malformation, athritic such as Rheumatoid  
CC arthritis,therosclerotic plaques, corneal graft neovascularisation,  
CC delayed wound healing, proliferative retinopathy such as diabetic  
CC retinopathy, macular degeneration, granulations such as those occurring  
CC in haemophilic joints, inappropriate vascularisation in wound healing  
CC such as hypertrophic scars or keloid scars, neovascular glaucoma, ocular  
CC tumour, uveitis, non-union fractures, Osler-Weber syndrome, psoriasis,  
CC pyogenic granuloma, retrolentatal fibroplasia, scleroderma, solid tumours,  
CC Kaposi's sarcoma, trachoma, vascular adhesions, chronic varicose ulcers,  
CC leukæmia, and reproductive disorders such as follicular and luteal cysts  
CC and choriorcarcinoma. They can also be used as contraceptive agents. DNA  
CC encoding the peptides can be used in gene therapy. The measurement of  
CC abnormal levels of N-terminal fragments of hGH, hgh-V, prolactin or hPL  
CC can be used in assays for impairment of vascular development associated  
CC with pre-eclampsia, intrauterine growth retardation, and placental  
CC dysfunction.

SQ Sequence      135 AA;

Query Match                 100.0%; Score 689; DB 20; Length 135:  
Best Local Similarity     100.0%; Pred. No. 6.3e-62;  
Matches 135; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY          1 MFPPTRSRLEDNMLRRRLRYQLAYDYIOEFEEVYLKEOKYSFLONPQSICFSESIP 60  
Db          I mfpptpsrlrldnmllrrlryqlaydygyefeeayilkeqsfslpqptslicfsesip 60

OY          61 TFSNVKTKQQKSNNELLSITLLTOSWLEPVOLLASVPANSLVYGASDSNNVRHLKDLEE 120  
Db          61 tpsnvtkqqksnnellstisilliqswlepvollsvpanslvygadsnnyrhikdlee 120

OY          121 GIOTLMWRLEDGSPR 135  
            |||||  
            |||  
Db          121 giotlmwrledgspr 135

RESULT         2  
ID     AAW92266 standard; Protein; 192 AA.

AC     AAM92266;  
XX  
DT     08-JUN-1999 (first entry)  
XX  
DE     Human anti-angiogenic peptide hgh-V Met-1Iphe191.  
KW     Human; anti-angiogenic; prolactin; placental lactogen; hPL; angiogenesis;  
growth hormone; hGH; hgh-V; capillary endothelial cell proliferation;

KW Placental vascularisation; pregnancy; treatment; angiogenic disease;  
 KW tumour; inhibitor; malignant; angiofibroma; arteriovenous malformation;  
 KW arthritis; atherosclerotic plaques; corneal graft neovascularisation;  
 KW wound healing; proliferative retinopathy; macular degeneration; trachoma;  
 KW granulation; glaucoma; ocular; uveitis; fracture; Osler-Weber syndrome;  
 KW porriasis; fibropiasia; scleroderma; Kaposi's sarcoma; vascular adhesion;  
 KW ulcer; leukaemia; reproductive disorder; contraceptive agent;  
 KW gene therapy; pre-eclampsia; intrauterine growth retardation;  
 KW placental dysfunction.  
 KW  
 XX  
 OS Homo sapiens.  
 PN WO9651333-A1.  
 PD 19-NOV-1998.  
 XX  
 PF 12-MAY-1998; 98WO-US09691.  
 XX  
 PR 13-MAY-1997; 97US-0046394.  
 XX  
 PA (REGC ) UNITV CALIFORNIA.  
 XX  
 PI Martial JA, Struman I, Taylor R, Weiner RI;  
 XX  
 DR WPI: 1999-045192/04.  
 XX  
 DR N-PSDB; AAX01710.  
 XX  
 PT New anti-angiogenic peptides - comprise N-terminal fragments of  
 PT human placental lactogen, human growth hormone, growth hormone  
 PT variant or human prolactin  
 PS  
 XX  
 PS Example 3; Page 51-52; 87pp; English.  
 XX  
 CC This invention describes novel human anti-angiogenic peptides derived  
 CC from 10 to 150 consecutive amino acids selected from the N-terminal end  
 CC of human placental lactogen (hPL), human growth hormone (hGH), growth  
 CC hormone variant (hGH-V), or human prolactin. Such peptides (i) inhibit  
 CC capillary endothelial cell proliferation and organisation (ii) inhibit  
 CC angiogenesis in chick chorioallantoic membrane and (iii) binds to at  
 CC least one specific receptor which does not bind an intact full length  
 CC hGH, hPL, prolactin or hGH-V. The invention also describes a method for  
 CC diagnosing a probable abnormality of placental vascularisation during  
 CC pregnancy. The peptides can be used for treating an angiogenic disease in  
 CC a subject, for inhibiting tumour formation or growth in a patient or for  
 CC modulating vascularisation of a patient's placenta. In particular, the  
 CC peptides can be used for preventing or treating e.g. malignant tumours,  
 CC angiofibroma, arteriovenous malformation, arthritic such as rheumatoid  
 CC arthritis, atherosclerotic plaques, corneal graft neovascularisation,  
 CC delayed wound healing, proliferative retinopathy such as diabetic  
 CC retinopathy, macular degeneration, granulations such as those occurring  
 CC in haemophilic joints, inappropriate vascularisation in wound healing  
 CC such as hypertrophic scars or keloid scars, neovascular glaucoma, ocular  
 CC tumour, uveitis, non-union fractures, Osler-Weber syndrome, psoriasis,  
 CC pyogenic glaucoma, retrolental fibroplasia, scleroderma, solid tumours,  
 CC Kaposi's sarcoma, trachoma, vascular adhesions, chronic varicose ulcers,  
 CC leukaemia, and reproductive disorders such as follicular and luteal cysts  
 CC and choriorcinoma. They can also be used as contraceptive agents. DNA  
 CC encoding the peptides can be used in gene therapy. The measurement of  
 CC abnormal levels of N-terminal fragments of hGH, hGH-V, prolactin or hPL  
 CC can be used in assays for impairment of vascular development associated  
 CC with pre-eclampsia, intrauterine growth retardation, and placental  
 CC dysfunction.  
 CC  
 XX  
 SQ Sequence 192 Aa;  
 XX  
 Query Match 100.0%; Score 689; DB 20; Length 192;  
 Best Local Similarity 100.0%; Pred. No. 9,7e-62;  
 Matches 135; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 1 MFPTPLSLFDNMLRARRLTOLAVDYTOEFEEAYILKEQKYSFLQNFQISLCSSESIP 60  
 1 MPTPLSLSLFDNMLRARRLTOLAVDYTOEFEEAYILKEQKYSFLQNFQISLCSSESIP 60



OY 61 TPNRNVKTOOKSNLELLRISILLIQSWLEPVOILRSFANSILVYGASDSNVYRHLKDLDEE 120  
 |||||||  
 DB 61 tpsnrvtqgksnlellrlsilllqswlepyqlrsfsvfnsilvygassnvyrhkldee 120

OY 121 GIOTLMWRLEDGSPR 135  
 |||||||  
 DB 121 giotlmwrledgspr 135

## RESULT 3

AAP30046  
 ID AAP30046 standard; Protein: 217 AA.

AC AAP30046;

DT 05-AUG-1992 (first entry)

DE Sequence of human growth hormone variant HGH-V.

KW Growth hormone; anabolic agent; hypopituitary dwarfism; therapy.

OS Homo sapiens.

FN Key Location/Qualifiers

FT Peptide 1..26 /label= signal

PN EP89666-A.

PD 28-SEP-1983.

PF 21-MAR-1983; 83EP-0102789.

PR 22-MAR-1982; 82US-0360517.

PA (GENETH ) GENENTECH INC.

PI Seeburg PH;

DR WPI: 1983-778383/40.

DR N-PSDB; AAN30032.

PT Human growth hormone variant protein - produ. from cell culture obt.

PS Claim 2; Fig 3; 33pp; English.

XX The inventors claim a human growth hormone variant protein which is  
 CC different in structure from natural human growth hormone. They also  
 CC claim a method for the prepn. of a cDNA encoding the desired  
 CC polypeptide, the DNA sequence encoding the desired polypeptide, a  
 CC cloning vector and a transformed cell culture. The HGH variants are  
 CC implicated in the general anabolic and other metabolic activities of  
 CC processes including HGH itself, and they may have divergent  
 CC activities from those of HGH. Usually HGH is used for the treatment  
 CC of hypopituitary dwarfism.

XX Sequence 217 AA;

Query Match 99.3%; Score 684; DB 4; Length 217;  
 Best Local Similarity 100.0%; Pred. No. 3.6e-61;  
 Matches 134; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 2 PFTIPLSLFDNAMIARRRLYQLAYDTYQDFEAYILKDGKYSFLONPOTSLCFSESIPY 61  
 |||||||

DB 27 fptlplsrlfdnamrlarrrlyqlaydtgyeaaayllkdgkysflnqptsicfsesipt 86  
 |||||||

OY 62 PBNRYKTOOKSNLELLRISILLIQSWLEPVOILRSFANSILVYGASDSNVYRHLKDLDEE 121  
 |||||||

DB 87 psnrvtqgksnlellrlsilllqswlepyqlrsfsvfnsilvygassnvyrhkldee 146  
 |||||||

OY 122 IOTLMWRLEDGSPR 135  
 |||||||  
 DB 147 iotlmwrledgspr 160

## RESULT 4

AAB84937  
 ID AAB84937 standard; Protein: 217 AA.

AC AAB84937;

DT 06-AUG-2001 (first entry)

DE Human FCTR3 polypeptide (clone AC013601.A).

KW Growth factor polypeptide; FCTR3; cytokine; cell proliferation; human;  
 KW neurotrophic; anti-allergic; neuroprotective; immunomodulatory; cyostatic;  
 KW anti-inflammatory; osteopathic; vulnerrary; antiarthritic; antibacterial;  
 KW antiviral; gynecological; anti-infertility; anorectic; dermatological;  
 KW gene therapy; antisense therapy; FCTR3.

OS Homo sapiens.

FN WO200136635-A2.

PD 25-MAY-2001.

PF 15-NOV-2000; 2000WO-US31170.

PR 15-NOV-1999; 99US-0165733.

PR 18-NOV-1999; 99US-0166143.

PR 18-NOV-1999; 99US-0166178.

PR 18-NOV-1999; 99US-0166288.

PR 24-NOV-1999; 99US-0167471.

PR 14-NOV-2000; 2000US-0167471.

PA (CURA-) CURAGEN CORP.

PI Majumder K, Prayaga SK, Burgess C;

DR WPI: 2001-336005/35.

DR N-PSDB; AAF83835.

PT New isolated polypeptide coding for growth factor polypeptides, FCTR3,

PT used to treat, diagnose or prevent pathologies associated with, and

PT identify agents that bind to, the polypeptide and in the manufacture of

PT medicaments -

XX Claim 1; Page 13; 126pp; English.

XX The invention relates to novel growth factor polypeptides (FCTR3) and  
 CC polynucleotides encoding them. A FCTR3 protein may exhibit cytokine, cell  
 CC proliferation or cell differentiation (either inducing or inhibiting)  
 CC activity or may induce production of other cytokines in certain cell  
 CC populations. FCTR3 may also demonstrate activity as receptor, receptor  
 CC ligands, or inhibitors or agonists of receptor/ligand interactions and  
 CC may also provide a stimulus to cells involved in the inflammatory  
 CC response. The FCTR3 proteins and polynucleotides may be used to treat or  
 CC prevent a preferably human pathology associated with FCTR3 which include  
 CC neurodegenerative pathologies, osteoarthritis and osteoporosis, diseases  
 CC associated with cell hyperproliferation and loss of cell proliferation,  
 CC pre-malignant conditions, hyperproliferative or benign dysproliferative,  
 CC disorders, disorders relating to organ transplantation, viral, bacterial  
 CC and fungal infections, autoimmune disease, bone, cartilage, tendon,  
 CC ligament, nerve tissue growth or regeneration, inflammation, control of  
 CC fertility, sterility, forms of growth misregulation e.g. dwarfism,  
 CC acromegaly, obesity, anorexia and body mass related disorders, and  
 CC immunodeficiency diseases. The present sequence represents a FCTR3  
 CC protein, a somatotropin homologue.

XX Sequence 217 AA;

Query Match 91.4%; Score 630; DB 22; Length 217;  
 Best Local Similarity 94.8%; Pred. No. 1e-55;  
 Matches 127; Conservative 1; Mismatches 6; Indels 0; Gaps 0;

QY 2 FPTPLSRFLDNAMLRARLYOLADYDYOEFEEAYILKEQKYSFLONPOTSICFSSESIP 61  
 |||||  
 Db 27 fptplsrflfdnamlrarhrlhqladtyqfeeaaylpekqysflqnpqtslcfesesip 86  
 QY 62 PSNRVKTQOKSNLELRISLLIOSWLEPVLRSVPANSIYVGASDSNRYRHKLDEEG 121  
 |||||  
 Db 87 psnrktqgksnlellrlislllqswlepvlrlsvfanslvygasdsnydlkldee 146  
 QY 122 IOTLMWRLEDGSPR 135  
 |||||  
 Db 147 iqtlmgrledgspr 160

## RESULT 5

AAP91041  
 ID AAP91041 standard; protein; 140 AA.

XX AAP91041;  
 AC 14-DEC-1989 (first entry).  
 DT  
 DE Human growth hormone segment.  
 XX  
 KW Human growth hormone; fusion protein; thrombin;  
 KM geriatric dementia; nervous disorders; human nerve factor.  
 XX  
 OS Homo sapiens (human).  
 XX  
 PN EP329175-A.  
 PD 23-AUG-1989.  
 XX  
 PF 17-FEB-1989; 89EP-0102795.  
 PR 19-FEB-1988; 88JP-0035042.  
 XX  
 PA (TOYJ ) TOSOH CORP.  
 XX  
 XX Ohtsuka E;  
 PI  
 XX  
 DR WPI; 1989-243092/34.  
 XX  
 PT New human nerve growth factor gene encoding fusion protein  
 PT - having cleavage site for thrombin, useful for treating geriatric  
 PT dementia, etc.  
 XX  
 PS Disclosure; page 21; 38pp; English.  
 XX  
 CC Human growth hormone segment, used at the N-terminal of a fusion  
 CC protein, which contains a thrombin recognition site, and human beta nerve  
 CC growth factor (beta-NGF) at the C-terminal. Beta-NGF can be used to  
 CC control geriatric dementia and other nervous disorders, and can be  
 CC released from the fusion protein by incubation with thrombin (see  
 CC AA90577-8, AAP91034, AAP91299).  
 CC  
 XX  
 SQ Sequence 140 AA;

Query Match 90.4%; Score 623; DB 10; Length 140;  
 Best Local Similarity 92.6%; Pred. No. 3e-55;  
 Matches 125; Conservative 3; Mismatches 7; Indels 0; Gaps 0;

QY 1 MFPTPLSRFLDNAMLRARLYOLADYDYOEFEEAYILKEQKYSFLONPOTSICFSSESIP 60  
 |||||  
 Db 1 mfpplsrflfdnamlrarhrlhqladtyqfeeaaylpekqysflqnpqtslcfesesip 60  
 QY 61 TPSNRVKTQOKSNLELRISLLIOSWLEPVLRSVPANSIYVGASDSNRYRHKLDEE 120  
 |||||  
 Db 61 tpsnrktqgksnlellrlislllqswlepvlrlsvfanslvygasdsnydlkldee 120

QY 121 GIOTLMWRLEDGSPR 135  
 |||||  
 Db 121 giotlmgrledgspr 135

## RESULT 6

AAP90129  
 ID AAP90129 standard; protein; 192 AA.

XX AAP90129;  
 AC 06-FEB-1996 (revised)  
 DT 01-NOV-1989 (first entry)  
 DE Human growth hormone.  
 XX  
 KW Human growth hormone; fusion protein; recombinant  
 KM vector.  
 XX  
 OS Homo sapiens (human).  
 XX  
 PN JP0114981-A.  
 PD 07-JUN-1989.  
 XX  
 PF 02-DEC-1987; 87JP-0304937.  
 PR 02-DEC-1987; 87JP-0304937.  
 XX  
 PA (WAKU ) WAKUNGA SEIYAKU KK.  
 XX  
 DR WPI; 1989-209284/29.  
 DR N-PSDB; AAN90269.  
 XX  
 PT Recombinant vector contg. fusion protein - consisting of human  
 PT growth hormone or deriv. ligated to foreign protein, for stability  
 PT and high yield.  
 XX  
 PS Disclosure; Fig 1; 19pp; Japanese.  
 XX  
 CC The invention consists of a vector contg. a fusion protein which is  
 CC formed by ligating, downstream of a promoter, hGH or a deriv. (pref.  
 CC formed by substn. of Met-14 with Leu) and a foreign protein.  
 CC Stability of the vector in the host is greatly increased so the  
 CC protein yield is higher.  
 XX  
 SQ Sequence 192 AA;

Query Match 90.4%; Score 623; DB 10; Length 192;  
 Best Local Similarity 92.6%; Pred. No. 4.5e-55;  
 Matches 125; Conservative 3; Mismatches 7; Indels 0; Gaps 0;

QY 1 MFPTPLSRFLDNAMLRARLYOLADYDYOEFEEAYILKEQKYSFLONPOTSICFSSESIP 60  
 |||||  
 Db 1 mfpplsrflfdnamlrarhrlhqladtyqfeeaaylpekqysflqnpqtslcfesesip 60  
 QY 61 TPSNRVKTQOKSNLELRISLLIOSWLEPVLRSVPANSIYVGASDSNRYRHKLDEE 120  
 |||||  
 Db 61 tpsnrktqgksnlellrlislllqswlepvlrlsvfanslvygasdsnydlkldee 120  
 QY 121 GIOTLMWRLEDGSPR 135  
 |||||  
 Db 121 giotlmgrledgspr 135

## RESULT 7

AA92264  
 ID AA92264 standard; protein; 192 AA.

XX AA92264;  
 AC



Db 1 mfpitpislrlfdnamlrhrlhqlafdtgqfeeaayipkqkysflqnpqtslcfesesip 60  
 QY 61 TPSNRVKTQOKSNLELRISLLIQSWELEPVQLRSVFANSLSVYGASDSNVYRHLDLEE 120  
 Db 61 tpsnrvtqgksnlellrlrlsllllqswlepvgflrsvfanslvygadsnvydlkdllee 120  
 QY 121 GIOTLMWRLEDDGSPR 135  
 Db 121 gicqlmgrlcdgspr 135

## RESULT 9

AA061033  
 ID AAP61033 standard; Protein; 262 AA.  
 XX  
 AC AAP61033;  
 XX  
 DT 25-OCT-1991 (first entry)  
 XX  
 DE Human beta-nerve growth factor gene product.  
 XX  
 KM Beta-NGF; E.coli; ds.  
 XX  
 OS Homo sapiens.  
 XX  
 FH Key Location/Qualifiers  
 FT Protein 145..262  
 PN JP61205485-A.  
 PD 11-SEP-1986.  
 XX  
 PF 09-MAR-1985; 85JP-0045773.  
 XX  
 PR 09-MAR-1985; 85JP-0045773.  
 XX  
 PA (OTSU/) OTSUKA E.  
 XX  
 DR WPI: 1986-281696/43.  
 XX  
 PT Gene segment of human nerve growth factor - used in prodn. of  
 PT NGF-producing recombinant Escherichia strain.  
 XX  
 PS Claim 32; Page 482; 71pp; Japanese.  
 XX  
 CC The protein is a direct translation of the upstream tryptophan  
 CC promoter-operator lacking its attenuation sequence and human  
 CC beta-NGF sequence. The product may be efficiently expressed from a  
 CC transformed E.coli expression system.  
 CC See also AA060816-7.  
 CC  
 SQ Sequence 262 AA;

Query Match 90.4%; Score 623; DB 7; Length 262;  
 Best Local Similarity 92.6%; Pred. No. 6.5e-55;  
 Matches 125; Conservative 3; Mismatches 7; Indels 0; Gaps 0;

QY 1 MFPTIPLSRLFDNAMLRARLYOLAYDYQEFEEAYILKEOKYSFLQNPOTSICFSESIP 60  
 Db 1 mfpitpislrlfdnamlrhrlhqlafdtgqfeeaayipkqkysflqnpqtslcfesesip 60  
 QY 61 TPSNRVKTQOKSNLELRISLLIQSWELEPVQLRSVFANSLSVYGASDSNVYRHLDLEE 120  
 Db 61 tpsnrvtqgksnlellrlrlsllllqswlepvgflrsvfanslvygadsnvydlkdllee 120  
 QY 121 GIOTLMWRLEDDGSPR 135  
 Db 121 gicqlmgrlcdgspr 135

## RESULT 10

AA011740

ID AA011740 standard; Protein; 262 AA.

XX  
 AC AA011740;  
 XX  
 DT 25-JUN-1991 (first entry)  
 XX  
 DE Human growth hormone/human nerve growth factor beta fusion protein.  
 XX  
 KW hGH; hNGF; nervous system diseases; dementia.  
 XX  
 OS Homo sapiens.  
 XX  
 PN JP03067598-A.  
 PD 22-MAR-1991.  
 XX  
 PF 07-JUL-1989; 89JP-0202835.  
 XX  
 PR 07-AUG-1989; 89JP-0202835.  
 XX  
 PA (TOYU ) TOSOH CORP.  
 XX  
 DR WPI: 1991-128768/18.  
 DR N-PSDB; AA011578.  
 XX

purification of human neuron growth factor beta-subunit-contg. protein -  
 by contacting with gel having cation exchange gp. in presence of  
 urea

Disclosure ; fig 1; 7pp; Japanese.

CC A recombinant human nerve growth factor beta subunit-contg. protein  
 CC can be produced as this fusion protein. It is purified by contacting  
 CC a gel having a cation exchange gp. with the fusion protein, in the  
 CC presence of urea. The purified protein is useful in a medicament  
 CC for treating disorders of the nervous system, eg dementia.  
 CC  
 SQ Sequence 262 AA;

Query Match 90.4%; Score 623; DB 12; Length 262;  
 Best Local Similarity 92.6%; Pred. No. 6.5e-55;  
 Matches 125; Conservative 3; Mismatches 7; Indels 0; Gaps 0;

QY 1 MFPTIPLSRLFDNAMLRARLYOLAYDYQEFEEAYILKEOKYSFLQNPOTSICFSESIP 60  
 Db 1 mfpitpislrlfdnamlrhrlhqlafdtgqfeeaayipkqkysflqnpqtslcfesesip 60  
 QY 61 TPSNRVKTQOKSNLELRISLLIQSWELEPVQLRSVFANSLSVYGASDSNVYRHLDLEE 120  
 Db 61 tpsnrvtqgksnlellrlrlsllllqswlepvgflrsvfanslvygadsnvydlkdllee 120  
 QY 121 GIOTLMWRLEDDGSPR 135  
 Db 121 gicqlmgrlcdgspr 135

## RESULT 11

AA005313

ID AA005313 standard; Protein; 144 AA.

AC AA005313;  
 XX  
 DT 19-JUL-1990 (first entry)  
 XX  
 DE Segment of B-cell stimulatory factor-2 (IL-5).  
 XX  
 KM B-cell stimulatory factor-2; interleukin-5.  
 XX  
 OS Homo sapiens.  
 XX  
 PN JP02013375-A.  
 XX

PD 17-JAN-1990.  
XX  
XX 01-JUL-1988; 88JP-0162556.  
XX  
XX 01-JUL-1988; 88JP-0162556.  
XX  
XX (TOYJ ) TOSOH CORP.  
XX  
XX WPI; 1990-062207/09.  
DR N-PSDB; AAO02028.  
XX  
XX  
PT Prep. of human B-cell differentiation factor - from specified DNA  
PT sequence segment, by recombinant DNA technique, gives protein of  
PT specified amino acid sequence.  
XX  
XX  
PS Disclosure; Page 9; 17pp; Japanese.  
XX  
XX The sequence encoding this protein can be fused with DNA encoding B-cell  
CC differentiation factor (IL-6) and ligated into an expression vector for  
CC prodn. of a fusion protein.  
CC See also AAR05311.  
CC  
XX  
SQ Sequence 144 AA;

Query Match 90.0%; Score 620; DB 11; Length 144;  
Best Local Similarity 91.9%; Pred. No. 6.3e-55;  
Matches 124; Conservative 4; Mismatches 7; Indels 0; Gaps 0;

QY 1 MFPTPLSRFLPDNAMLRARRLYOLAYDTYQEFEEAYILKEOKYSFLONPQTSICFSESIP 60  
DB 1 mfptplsrflfdnamlrhrlhqlatldtyqefeeayilpkqkysflmpqtsicisesip 60  
QY 61 TPSNRVKTQOKSNLELRISDLLIQSWLEPVQLRSVFANSLVYGASDSNVYRHLKDLDEE 120  
DB 61 tpsnreeetqgksnlellrlislllqswlepvgflrsvfanslvygadsnvydlldleeg 120  
QY 121 GIOTLMRLEDPGSPR 135  
DB 121 giotlmgrledgspr 135

RESULT 12  
AAP81226  
ID AAP81226 standard; protein: 138 AA.  
XX  
XX AAP81226;  
AC  
XX  
XX 20-NOV-1990 (first entry)  
DT  
XX  
XX Sequence of protein with somatomedin-like activity.  
DE  
XX  
XX Growth hormone.  
KW  
XX  
XX Synthetic.  
OS  
XX  
XX JP63167798-A.  
PN  
XX  
XX 11-JUL-1988.  
PD  
XX  
XX 29-DEC-1986; 86JP-0310177.  
PF  
XX  
XX 29-DEC-1986; 86JP-0310177.  
PR  
XX  
XX 29-DEC-1986; 86JP-0310177.  
XX  
XX (TOYJ ) TOYO SODA MFG KK.  
PA  
XX  
XX WPI; 1988-232632/33.  
DR  
XX  
XX N-PSDB; AAN81605.  
DR  
XX  
XX Polypeptide with somatomedin-like activity -  
PT by culturing bacterium transformed by plasmid contg. gene  
PT segment with specified DNA sequence  
XX

PS Claim 2(1); Page 609; 9pp; Japanese.  
XX  
XX The polypeptide (AAP81226) with somatomedin-like activity and the DNA  
CC (AAN81605) encoding it are claimed. A Met residual gp. may be added to  
CC the N-terminal. The polypeptide acts on the bone structure of mammals,  
CC including humans, to promote bone growth. The polypeptide has high  
CC production rate and is easily extracted from bacterial culture medium  
CC and refined for use as a bone growth accelerator.  
XX  
XX  
SQ Sequence 138 AA;

Query Match 89.7%; Score 618; DB 9; Length 138;  
Best Local Similarity 92.5%; Pred. No. 9.5e-55;  
Matches 124; Conservative 3; Mismatches 7; Indels 0; Gaps 0;

QY 2 FPTPLSRFLPDNAMLRARRLYOLAYDTYQEFEEAYILKEOKYSFLONPQTSICFSESIP 61  
DB 1 fptplsrflfdnamlrhrlhqlatldtyqefeeayilpkqkysflmpqtsicisesip 60  
QY 62 PSNRVKTQOKSNLELRISDLLIQSWLEPVQLRSVFANSLVYGASDSNVYRHLKDLDEG 121  
DB 61 psnreeetqgksnlellrlislllqswlepvgflrsvfanslvygadsnvydlldleeg 120  
QY 122 IOTLMRLEDPGSPR 135  
DB 122 iotlmgrledgspr 135

RESULT 13  
AAV15809  
ID AAV15809 standard; protein: 191 AA.  
XX  
XX AAV15809;  
AC  
XX  
XX 28-JUL-1999 (first entry)  
DT  
XX  
XX Primary amino acid sequence of native human growth hormone.  
DE  
XX  
XX Detection; fluorescence; illegal misuse; growth substance; athlete;  
KW domesticated farm animal; cattle; human growth hormone.  
KW  
XX  
XX Homo sapiens.  
OS  
XX  
XX WO926069-A1.  
PN  
XX  
XX 27-MAY-1999.  
PD  
XX  
XX 16-NOV-1998; 98WO-GB03449.  
PF  
XX  
XX 14-NOV-1997; 97GB-0023955.  
PR  
XX  
XX (GENE-) GENERIC BIOLOGICALS LTD.  
PA  
XX  
XX Atkinson A, Murphy JP;  
PI  
XX  
XX WPI; 1999-338072/28.  
DR  
XX  
XX

PT Use of tagged exogenous polypeptide  
PT Disclosure; Fig 1; 38pp; English.  
XX  
XX The specification describes a method of detecting an exogenously  
CC administered substance from a naturally-occurring endogenous substance,  
CC the exogenous substance being tagged so that it fluoresces differently  
CC from the endogenous one at a suitable wavelength. The tagging may  
CC consist of one or more substitutions in tagged growth hormone  
CC selected from G40Y, F52Y, W86F, Y, L, I or V F103Y or I137Y;  
CC The method is used to distinguish between exogenously administered  
CC substances as compared to naturally-occurring endogenous substances.  
CC Especially mentioned is the illegal misuse of growth substances by  
CC athletes or in domesticated farm animals e.g. cattle. The present  
CC sequence represents native human growth hormone which may be used

CC in the method of the invention.

XX Sequence 191 AA;

Query Match 89.7%; Score 618; DB 20; Length 191;  
Best Local Similarity 92.5%; Pred. No. 1.4e-54;  
Matches 124; Conservative 3; Mismatches 7; Indels 0; Gaps 0;

```
QY 2 FFTIPLSRFDNAMLRRARLYOLADTYQEFEEAYILKEOKYSFLQNPQTSICFSSESIP 61
   |||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Db 1 fptiplsrfdnamlrarhlnhqladtyqefeeayilkeqkysflqnpqtsicfsesip 60
QY 62 PSNRVKTQOKSNLELRLISLLIQSWLEPVQLRSVFANSLVYGASDSNNYRHLKDLREG 121
   |||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Db 61 pnsreetqgkshlrlisllllqswlepvtflrsvfanslvygassdnnvdlkdlreg 120
QY 122 IOTLMWRLEDGSPR 135
   |||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Db 121 lqtlmgriedgspr 134
```

#### RESULT 14

AA04396  
ID AAY04396 standard; protein; 191 AA.

AC AAY04396;

DT 29-JUN-1999 (first entry)

DE Natural human 22kDa growth hormone.

XX Human; 22kDa growth hormone; hGH; mutant; thrombin; resistance;

KW plasmin; decomposition.

XX Homo sapiens.

PN JP11092499-A.

PD 06-APR-1999.

PF 22-SEP-1997; 97JP-0275277.

PR 22-SEP-1997; 97JP-0275277.

PA (SDMU ) SUMITOMO SEIYAKU KK.

DR WPI: 1999-283567/24.

PT A human growth hormone mutant - with equivalent activity to natural

PS human growth hormone

PS Example 1; Page 5-6; 10pp; Japanese.

CC The present invention describes a human growth hormone mutant in which  
CC the 134th Arg and the 135th Thr are replaced respectively by Asp and Pro  
CC in the 1st to the 191st amino acid sequence of natural type human 22 kDa  
CC growth hormone (hGH) and which has a resistance against decomposition by  
CC thrombin. The present sequence represents the natural hGH. Also  
CC described are: (1) a hGH mutant in which the 134th Arg, the 135th Thr  
CC and the 140th Lys are replaced respectively by Asp, Pro and Ala in the  
CC amino acid sequence of natural type hGH and which has a resistance  
CC against decomposition by thrombin and plasmin; and (2) a drug  
CC preparation containing the above hGH mutant as the active component.  
CC The mutant hGH shows an activity approximately equivalent to that of  
CC natural type hGH and shows a high stability in blood and body fluid.

XX Sequence 191 AA;

Query Match 89.7%; Score 618; DB 20; Length 191;  
Best Local Similarity 92.5%; Pred. No. 1.4e-54;  
Matches 124; Conservative 3; Mismatches 7; Indels 0; Gaps 0;

```
QY 2 FFTIPLSRFDNAMLRRARLYOLADTYQEFEEAYILKEOKYSFLQNPQTSICFSSESIP 61
   |||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Db 1 fptiplsrfdnamlrarhlnhqladtyqefeeayilkeqkysflqnpqtsicfsesip 60
```

```
QY 62 PSNRVKTQOKSNLELRLISLLIQSWLEPVQLRSVFANSLVYGASDSNNYRHLKDLREG 121
   |||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Db 61 pnsreetqgkshlrlisllllqswlepvtflrsvfanslvygassdnnvdlkdlreg 120
```

```
QY 122 IOTLMWRLEDGSPR 135
   |||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
Db 121 lqtlmgriedgspr 134
```

#### RESULT 15

AA78425  
ID AAY78425 standard; protein; 191 AA.

AC AAY78425;

DT 09-MAY-2000 (first entry)

DE Human growth hormone amino acid sequence.

XX Human growth hormone; hGH; prolactin; placental lactogen;

KW modification; mutagenesis.

XX Homo sapiens.

PN US6013478-A.

PD 11-JAN-2000.

PE 24-JUN-1998; 98US-0104036.

PR 26-OCT-1989; 89US-0428066.

PR 27-APR-1992; 92US-0875204.

PR 13-OCT-1992; 92US-0960227.

PR 02-FEB-1994; 94US-0190723.

PR 06-JUN-1995; 95US-0483039.

PR 30-JUN-1997; 97US-0903398.

PR 28-OCT-1988; 88US-0264611.

PA (GETH ) GENENTECH INC.

PI Wells JA, Cunningham BC;

DR WPI: 2000-159873/14.

PT Recombinant production of variant polypeptides, e.g. growth hormone

PS variants with altered receptor specificity, using cells transformed

PS with DNA selected by scanning mutagenesis in at least one peptide

PS domain

PS Example 2; Fig 2; 83pp; English.

CC The present invention describes the production of a polypeptide variant  
CC (1) comprising segment substituted and residue substituted growth  
CC hormone, prolactin or placental lactogens. The method is particularly  
CC used to produce variants of growth hormone (GH), prolactin or placental  
CC lactogen, but may also be applied to receptors, interferons, and  
CC colony-stimulating factors. A particular application is the production  
CC of human GH variants with altered (decreased or increased) binding  
CC interaction with the somatogenic receptor, i.e. compounds useful as  
CC human GH (ant)agonists and which may have higher potency for stimulating  
CC other human GH receptors, and as standards or tracers in immunoassays  
CC for human GH. This method of DNA selection identifies the biologically  
CC active residues in active domains, including those critical for  
CC interaction with different targets. The present sequence represents the  
CC human GH amino acid sequence, which is used in the exemplification of  
CC the present invention.

XX Sequence 191 AA;







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OM protein - protein search, using sw model

Run on: September 25, 2002, 09:58:40 ; Search time 20.68 Seconds  
(without alignments)  
159.451 Million cell updates/sec

Title: US-09-819-094-30  
Perfect score: 689  
Sequence: 1 MFPTPLSRFLPDNMLRARR.....KDEEGTQTLMWRLDGSPP 135

Scoring table:  
Gapop 10.0 , Gapext 0.5

Searched: 231628 seqs, 24425594 residues

Total number of hits satisfying chosen parameters: 231628

Minimum DB seq length: 0  
Maximum DB seq length: 200000000

Post-Processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

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1: /cgn2\_6/ptodata/2/1aa/5A.COMB.pep:\*  
2: /cgn2\_6/ptodata/2/1aa/5B.COMB.pep:\*  
3: /cgn2\_6/ptodata/2/1aa/6A.COMB.pep:\*  
4: /cgn2\_6/ptodata/2/1aa/6B.COMB.pep:\*  
5: /cgn2\_6/ptodata/2/1aa/PCRTOS.COMB.pep:\*  
6: /cgn2\_6/ptodata/2/1aa/Backfiles1.pep:\*

Pred. No. is the number of results predicted by chance to have a  
score greater than or equal to the score of the result being printed,  
and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	623	90.4	192	1	US-08-093-383-1 Sequence 1, Appl1
2	618	89.7	191	4	US-09-284-878-5 Sequence 5, Appl1
3	618	89.7	194	2	US-08-383-621-4 Sequence 4, Appl1
4	618	89.7	194	3	US-08-459-906-4 Sequence 4, Appl1
5	618	89.7	217	3	US-08-589-028-10 Sequence 10, Appl1
6	618	89.7	217	3	US-08-784-582-10 Sequence 10, Appl1
7	618	89.7	217	4	US-08-785-271-10 Sequence 10, Appl1
8	618	89.7	217	4	US-08-759-628-11 Sequence 11, Appl1
9	618	89.7	217	4	US-09-284-878-11 Sequence 11, Appl1
10	618	89.7	274	3	US-08-784-582-71 Sequence 71, Appl1
11	618	89.7	360	3	US-08-784-582-73 Sequence 73, Appl1
12	612	88.8	191	4	US-09-465-461-1 Sequence 1, Appl1
13	612	88.8	217	1	US-08-187-756C-4 Sequence 4, Appl1
14	612	88.8	217	1	US-08-469-486-51 Sequence 51, Appl1
15	612	88.8	217	2	US-08-469-658-51 Sequence 51, Appl1
16	612	88.8	217	2	US-08-710-324A-4 Sequence 4, Appl1
17	603	87.5	191	4	US-08-800-215C-16 Sequence 16, Appl1
18	603	87.5	191	4	US-08-800-215C-20 Sequence 20, Appl1
19	594	86.2	191	4	US-08-800-215C-18 Sequence 18, Appl1
20	532.5	76.4	21	3	US-08-791-728-1 Sequence 1, Appl1
21	526.5	76.4	21	3	US-08-791-728-2 Sequence 2, Appl1
22	507	73.6	168	6	5424199-3 Patent No. 5424199
23	501.5	72.8	198	1	US-08-187-756C-5 Sequence 5, Appl1
24	501.5	72.8	198	2	US-08-710-324A-5 Sequence 5, Appl1
25	428	62.1	191	1	US-08-468-824-8 Sequence 8, Appl1
26	426	61.8	191	1	US-07-963-331D-4 Sequence 1, Appl1
27	425	61.7	216	2	US-09-105-651-1 Sequence 1, Appl1

28	423	61.4	190	1	US-08-388-267C-2 Sequence 2, Appl1
29	423	61.4	190	4	US-09-277-720-2 Sequence 2, Appl1
30	423	61.4	191	6	5210180-1 Patent No. 5210180
31	423	61.4	193	1	US-07-621-197C-2 Sequence 2, Appl1
32	423	61.4	193	1	US-08-363-982-2 Sequence 2, Appl1
33	423	61.4	193	2	US-08-383-621-1 Sequence 1, Appl1
34	423	61.4	193	3	US-08-459-906-1 Sequence 1, Appl1
35	423	61.4	216	2	US-09-105-651-3 Sequence 3, Appl1
36	421	61.1	190	1	US-07-963-331D-3 Sequence 3, Appl1
37	420	61.0	191	1	US-07-922-523-1 Sequence 1, Appl1
38	420	61.0	191	2	US-08-222-987-1 Sequence 1, Appl1
39	408	59.2	191	1	US-08-093-383-3 Sequence 3, Appl1
40	405	58.8	193	2	US-08-383-621-3 Sequence 3, Appl1
41	405	58.8	193	3	US-08-459-906-3 Sequence 3, Appl1
42	403	58.5	191	1	US-07-885-689A-29 Sequence 29, Appl1
43	403	58.5	193	3	US-08-383-621-2 Sequence 2, Appl1
44	403	58.5	193	2	US-08-459-906-2 Sequence 2, Appl1
45	403	58.5	199	1	US-07-801-164A-4 Sequence 4, Appl1

## ALIGNMENTS

RESULT 1  
US-08-093-383-1  
; Sequence 1, Application US/08093383  
; Patent No. 5489529  
; GENERAL INFORMATION:  
; APPLICANT: DeBoer, Herman A.  
; APPLICANT: Heyneker, Herbert L.  
; APPLICANT: Seeburg, Peter H.  
; TITLE OF INVENTION: DNA for Expression of Bovine Growth Hormone  
; NUMBER OF SEQUENCES: 30  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Genentech, Inc.  
; STREET: 460 Point San Bruno Blvd  
; CITY: South San Francisco  
; STATE: California  
; COUNTRY: USA  
; ZIP: 94080  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: 5.25 inch, 360 KB floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: patin (Genentech)  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/093,383  
; FILING DATE: 14-JUL-1993  
; CLASSIFICATION: 435  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: 07/619827  
; FILING DATE: 28-NOV-1990  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: 07/198824  
; FILING DATE: 05-APR-1988  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: 06/632361  
; FILING DATE: 19-JUL-1984  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: 06/303687  
; FILING DATE: 18-SEP-1981  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Johnston, Sean A.  
; REGISTRATION NUMBER: P35,910  
; REFERENCE/DOCKET NUMBER: 46C4  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: 415/225-3562  
; TELEFAX: 415/952-9861  
; TELEX: 910/371-7168  
; INFORMATION FOR SEQ ID NO: 1:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 192 amino acids  
; TYPE: amino acid



CITY: Wayne  
STATE: New Jersey  
COUNTRY: U.S.A.  
ZIP: 07470-8426  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: PatentIn Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/459,906  
FILING DATE: 02-JUN-1995  
CLASSIFICATION: 514  
ATTORNEY/AGENT INFORMATION:  
NAME: Webster, Darryl L.  
REGISTRATION NUMBER: 34,276  
REFERENCE/DOCKET NUMBER: 31,278-03  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 201-831-3247  
TELEFAX: 201-831-3305  
INFORMATION FOR SEQ ID NO: 4:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 194 amino acids  
TYPE: amino acid  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
US-08-459-906-4

Query Match 89.7%; Score 618; DB 3; Length 194;  
Best Local Similarity 92.5%; Pred. No. 1,7e-66;  
Matches 124; Conservative 3; Mismatches 7; Indels 0; Gaps 0;

QY 2 PPTPLSLRFDNMLRARLYQLAYDTYQFEFEAYILKEQKYSFLQNPQTSICFSSEIPT 61  
|||||  
DB 4 PPTPLSLRFDNMLRARLYQLAYDTYQFEFEAYILKEQKYSFLQNPQTSICFSSEIPT 63  
|||||

QY 62 PSNRVKTQOKSNLELRISLLIQSWLEPVQLRSVFANSLVYGASDSNRYRLKDLDEG 121  
|||||  
DB 64 PSNRVKTQOKSNLELRISLLIQSWLEPVQLRSVFANSLVYGASDSNRYRLKDLDEG 123  
|||||

QY 122 IOTLMGRLEDSR 135  
|||||  
DB 124 IOTLMGRLEDSR 137  
|||||

RESULT 5  
US-08-589-028-10  
Sequence 10, Application US/08589028  
Patent No. 6087129  
GENERAL INFORMATION:  
APPLICANT: Newgard, Christopher B.  
APPLICANT: Halban, Philippe  
APPLICANT: No. 6087129mington, Karl D.  
APPLICANT: Clark, Samuel A.  
APPLICANT: Thijsen, Anice E.  
APPLICANT: Quaade, Christian  
APPLICANT: Kruse, Fred  
TITLE OF INVENTION: Recombinant Expression of Proteins From  
TITLE OF INVENTION: Secretory Cell Lines  
NUMBER OF SEQUENCES: 50  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Arnold, White & Durkee  
STREET: P. O. Box 4433  
CITY: Houston  
STATE: TX  
COUNTRY: USA  
ZIP: 77210-4433  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: PatentIn Release #1.0, Version #1.30

CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/589,028  
FILING DATE: Concurrently Herewith  
CLASSIFICATION: 435  
ATTORNEY/AGENT INFORMATION:  
NAME: Highlander, Steven L.  
REGISTRATION NUMBER: 47,642  
REFERENCE/DOCKET NUMBER: UTSD:426\HYL  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (512) 418-3000  
TELEFAX: (512) 474-7577  
INFORMATION FOR SEQ ID NO: 10:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 217 amino acids  
STRANDEDNESS:  
TYPE: amino acid  
TOPOLOGY: linear  
US-08-589-028-10

Query Match 89.7%; Score 618; DB 3; Length 217;  
Best Local Similarity 92.5%; Pred. No. 2e-66;  
Matches 124; Conservative 3; Mismatches 7; Indels 0; Gaps 0;

QY 2 PPTPLSLRFDNMLRARLYQLAYDTYQFEFEAYILKEQKYSFLQNPQTSICFSSEIPT 61  
|||||  
DB 27 PPTPLSLRFDNMLRARLYQLAYDTYQFEFEAYILKEQKYSFLQNPQTSICFSSEIPT 86  
|||||

QY 62 PSNRVKTQOKSNLELRISLLIQSWLEPVQLRSVFANSLVYGASDSNRYRLKDLDEG 121  
|||||  
DB 87 PSNRVKTQOKSNLELRISLLIQSWLEPVQLRSVFANSLVYGASDSNRYRLKDLDEG 146  
|||||

QY 122 IOTLMGRLEDSR 135  
|||||  
DB 147 IOTLMGRLEDSR 160  
|||||

RESULT 6  
US-08-784-582-10  
Sequence 10, Application US/08784582  
Patent No. 6110707  
GENERAL INFORMATION:  
APPLICANT: Newgard, Christopher B.  
APPLICANT: Halban, Philippe A.  
APPLICANT: No. 6110707mington, Karl D.  
APPLICANT: Clark, Samuel A.  
APPLICANT: Thijsen, Anice E.  
APPLICANT: Quaade, Christian  
APPLICANT: Kruse, Fred  
APPLICANT: McGarity, Dennis  
TITLE OF INVENTION: RECOMBINANT EXPRESSION OF PROTEINS FROM  
TITLE OF INVENTION: SECRETORY CELL LINES  
NUMBER OF SEQUENCES: 79  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Arnold, White & Durkee  
STREET: P. O. Box 4433  
CITY: Houston  
STATE: Texas  
COUNTRY: USA  
ZIP: 77210  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: PatentIn Release #1.0, Version #1.30  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/784,582  
FILING DATE: Concurrently Herewith  
CLASSIFICATION: 435  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 60/028,427  
FILING DATE: 15-OCT-1996  
PRIOR APPLICATION DATA:

APPLICATION NUMBER: US 08/589,028  
FILING DATE: 19-JAN-1996  
ATTORNEY/AGENT INFORMATION:  
NAME: Highlander, Steven L.  
REGISTRATION NUMBER: 37,642  
REFERENCE/DOCKET NUMBER: UTSD:514  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 512/418-3000  
TELEFAX: 512/474-7577  
INFORMATION FOR SEQ ID NO: 10:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 217 amino acids  
TYPE: amino acid  
STRANDEDNESS:  
TOPOLOGY: linear  
US-08-784-582-10

Query Match 89.7%; Score 618; DB 3; Length 217;  
Best Local Similarity 92.5%; Pred. No. 2e-66;  
Matches 124; Conservative 3; Mismatches 7; Indels 0; Gaps 0;

QY 2 FFTPLSLRFDNMLRARRLVQLADTYQEFEEAYILKEOKYSPLONPQTSICFSESIP 61  
DB 27 FFTPLSLRFDNMLRARRLVQLADTYQEFEEAYILKEOKYSPLONPQTSICFSESIP 86  
QY 62 PSNRVKTQOKSNLELRISLLIQSWLEPVQLRSVFANSLSVYGASDSNVYRHLDKEEG 121  
DB 87 PSNRRETOOKSNLELRISLLIQSWLEPVQLRSVFANSLSVYGASDSNVYRHLDKEEG 146  
QY 122 IOTLMGRLEDSGR 135  
DB 147 IOTLMGRLEDSGR 160

RESULT 7  
US-08-785-271-10  
Sequence 10, Application US/08785271  
Patent No. 6194176  
GENERAL INFORMATION:  
APPLICANT: Newgard, Christopher B.  
APPLICANT: Halban, Philippe A.  
APPLICANT: No. 6194176mington, Karl D.  
APPLICANT: Clark, Samuel A.  
APPLICANT: Thigpen, Anice E.  
APPLICANT: Quade, Christian  
TITLE OF INVENTION: RECOMBINANT EXPRESSION OF PROTEINS FROM  
NUMBER OF SEQUENCES: 56  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Arnold, White & Durkee  
STREET: P.O. Box 4433  
CITY: Houston  
STATE: Texas  
COUNTRY: USA  
ZIP: 77210  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patentin Release #1.0, Version #1.30  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/785,271  
FILING DATE: Concurrently herewith  
CLASSIFICATION: 435  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 08/589,028  
FILING DATE: 19-JAN-1996  
ATTORNEY/AGENT INFORMATION:  
NAME: Highlander, Steven L.  
REGISTRATION NUMBER: 37,642  
REFERENCE/DOCKET NUMBER: UTSD:513

TELECOMMUNICATION INFORMATION:  
TELEPHONE: 512/418-3000  
TELEFAX: 512/474-7577  
INFORMATION FOR SEQ ID NO: 10:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 217 amino acids  
TYPE: amino acid  
STRANDEDNESS:  
TOPOLOGY: linear  
US-08-785-271-10

Query Match 89.7%; Score 618; DB 4; Length 217;  
Best Local Similarity 92.5%; Pred. No. 2e-66;  
Matches 124; Conservative 3; Mismatches 7; Indels 0; Gaps 0;

QY 2 FFTPLSLRFDNMLRARRLVQLADTYQEFEEAYILKEOKYSPLONPQTSICFSESIP 61  
DB 27 FFTPLSLRFDNMLRARRLVQLADTYQEFEEAYILKEOKYSPLONPQTSICFSESIP 86  
QY 62 PSNRVKTQOKSNLELRISLLIQSWLEPVQLRSVFANSLSVYGASDSNVYRHLDKEEG 121  
DB 87 PSNRRETOOKSNLELRISLLIQSWLEPVQLRSVFANSLSVYGASDSNVYRHLDKEEG 146  
QY 122 IOTLMGRLEDSGR 135  
DB 147 IOTLMGRLEDSGR 160

RESULT 8  
US-08-759-628-11  
Sequence 11, Application US/08759628  
Patent No. 6225446  
GENERAL INFORMATION:  
APPLICANT: Altman, Scott W.  
APPLICANT: Rock, Fernando L.  
APPLICANT: Bazan, J. Fernando  
APPLICANT: Kastelein, Robert A.  
TITLE OF INVENTION: MUTATIONAL VARIANTS OF MAMMALIAN PROTEINS  
NUMBER OF SEQUENCES: 11  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: DNAX Research Institute  
STREET: 901 California Avenue  
CITY: Palo Alto  
STATE: California  
COUNTRY: USA  
ZIP: 94304-1104  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patentin Release #1.0, Version #1.30  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/759,628  
FILING DATE: 05-DEC-1996  
CLASSIFICATION: 435  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 60/008,574  
FILING DATE: 06-DEC-1995  
ATTORNEY/AGENT INFORMATION:  
NAME: Ching, Edwin P.  
REGISTRATION NUMBER: 34,090  
REFERENCE/DOCKET NUMBER: DX05520  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 415-852-9196  
TELEFAX: 415-496-1200  
INFORMATION FOR SEQ ID NO: 11:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 217 amino acids  
TYPE: amino acid  
STRANDEDNESS: single  
TOPOLOGY: linear  
MOLECULE TYPE: protein

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?      FEATURE:
?      NAME/KEY:    Peptide
?      LOCATION:    32..53
?
?      FEATURE:
?      NAME/KEY:    Peptide
?      LOCATION:    94..115
?
?      FEATURE:
?      NAME/KEY:    Peptide
?      LOCATION:    133..153
?
?      FEATURE:
?      NAME/KEY:    Peptide
?      LOCATION:    192..210
?      OTHER INFORMATION:
?      OTHER INFORMATION:
?      JS-08-759-628-11
?
?      /note="The peptides above are
?      depicted in Figure 1"

```

Query Match	89.7%	Score 618;	DB 4;	Length 217;
Best Local Similarity	92.5%;	Pred. No. 2e-66;		
Matches 124; Conservative	3;	Mismatches	7;	Indels 0; Gaps 0;

QY	2	FFTPTPLSLSTFLFNAMLRARRVYQLAVDYVYQOEENAVYILKEOKYSPLOMPOQSLCFSESIPr	61
QY	27	FFTPTPLSLSTFLFNAMLRARRVYQLAVDYVYQOEENAVYILKEOKYSPLOMPOQSLCFSESIPr	86
Db	27	FFTPTPLSLSTFLFNAMLRARRVYQLAVDYVYQOEENAVYILKEOKYSPLOMPOQSLCFSESIPr	86
QY	62	PSNVEKQOKSNELRLRSTLLIOSWLEPVOLANSVANSIYVSGASPNYRIHKLDEEG	122
Db	87	PSNVEKQOKSNELRLRSTLLIOSWLEPVOLANSVANSIYVSGASPNYRIHKLDEEG	146
QY	122	IQTLMLRLDEGSPR 135	
Db	147	IQTLMLRLDEGSPR 160	

RESULT 9  
 US-09-284-878-1  
 : Sequence 1, Application US/09284878  
 : Patent No. 6342375  
 : GENERAL INFORMATION:  
 : APPLICANT: Olazaran, Martha Guerrero  
 : APPLICANT: Saldana, Hugo Barrera  
 : APPLICANT: Salvado, Jose Maria Viader  
 : TITLE OF INVENTION: Genetically Modified Methylotrophic P. pastoris Yeast for the  
 : TITLE OF INVENTION: Production and Secretion of the Human Growth Hormone  
 : FILE REFERENCE: 1829.0010000  
 : CURRENT APPLICATION NUMBER: US/09/284, 878  
 : CURRENT FILING DATE: 1999-07-21  
 : PRIOR APPLICATION NUMBER: PCT/MX97/00033  
 : PRIOR FILING DATE: 1997-10-24  
 : NUMBER OF SEQ ID NOS: 9  
 : SOFTWARE: PatentIn Ver. 2.1  
 : SEQ ID NO 1  
 : LENGTH: 217  
 : TYPE: PRT  
 : ORGANISM: Homo sapiens  
 : US-09-284-878-1

	Query Match	Best Local Similarity	Matches	Conservative	Score 618;	DB 4;	Length 217;	Pred. No. 2e-66;	Mismatches 3;	Indels 7;	Gaps 0;
QY	2	FPPTPLSRLEFDNMLRARRRRLAYOLADYTOEPEEAYILKEQKYSFLONPQTSLSFSESIP	61								
Db	27	FPPTPLSRLEFDNMLRARRRRLAYOLADYTOEPEEAYILKEQKYSFLONPQTSLSFSESIP	86								
QY	62	PSNFVKTQOKSNLELLRISLLIQSNLEFVOLLRSVFANSLVYGASDSNYYRIHKDLEEG	121								
Db	87	PSNFEEVQOKSNLELLRISLLIQSNLEFVOLLRSVFANSLVYGASDSNYYRIHKDLEEG	146								
QY	122	IQTLMARKLEDGSPR	135								
Db	147	IQTLMARKLEDGSPR	160								

```

US-08-784-582-71
Sequence 71, Application US/08784582
Patent No. 6110707
GENERAL INFORMATION:
APPLICANT: Newgard, Christopher B.
APPLICANT: Halban, Philippe A.
APPLICANT: No. 6110707/mington, Karl D.
APPLICANT: Clark, Samuel A.
APPLICANT: Thigpen, Anice E.
APPLICANT: Quade, Christian
APPLICANT: Kruse, Fred
APPLICANT: McGarity, Dennis
TITLE OF INVENTION: RECOMBINANT EXPRESSION OF PROTEINS FROM
TITLE OF INVENTION: SECRETORY CELL LINES
NUMBER OF SEQUENCES: 79
CORRESPONDENCE ADDRESSES:
ADDRESSEE: Arnold, White & Durkee
STREET: P.O. Box 4433
CITY: Houston
STATE: Texas
COUNTRY: USA
ZIP: 77210
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/784,582
FILING DATE: Concurrently Herewith
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/028,427
FILING DATE: 15-OCT-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/589,028
FILING DATE: 19-JAN-1996
ATTORNEY/AGENT INFORMATION:
NAME: Highlander Steven L.
REGISTRATION NUMBER: 37,642
REFERENCE/DOCKET NUMBER: UTSD:514
TELECOMMUNICATION INFORMATION:
TELEPHONE: 512/418-3000
TELEFAX: 512/474-7577
INFORMATION FOR SEQ ID NO: 71:
SEQUENCE CHARACTERISTICS:
LENGTH: 274 amino acids
TYPE: amino acid
STRANDEDNESS:
TOPOLOGY: linear

```

Query Match	89.7%	Score 618;	DB 3;	Length 274;
Best Local Similarity	92.5%	Pred. No. 2.9e-66;		
Matches	124;	Conservative	3;	Mismatches 7;
			Indels	0;
			Gaps	0;
QY	2	FTPTILSRLEFDNAMLRRRLTYOLADTYOEFEEAYILKEOKYSFLONPOTSICFSES	IPT	61
DB	27	FTTILSRLEFDNAMLRAHRLHQLADTYOEFEEAYILPKOKYSFLONPOTSICFSES	IPT	86
QY	62	PSNRKYTOOKSMLELLRISLLIQSMLEPVOLLRSVFANSIYYGASDSNVYRLKLDLEEG		121
DB	87	PSNRRETOOKSMLELLRISLLIQSMLEPVOLLRSVFANSIYYGASDSNVYDLKLDLEEG		146
QY	122	IOTLMRLEDDGSPR		135
DB	147	IOTLMRLEDDGSPR		160

```

RESULT 11
US-08-784-582-73
; Sequence 73, Application US/08784582
; Patent No. 6110707
; GENERAL INFORMATION:
; APPLICANT: Newgard, Christopher B.
; APPLICANT: Halban, Philippe A.
; APPLICANT: No. 6110707mington, Karl D.
; APPLICANT: Clark, Samuel A.
; APPLICANT: Thiipen, Alike E.
; APPLICANT: Quade, Christian
; APPLICANT: Kruse, Fred
; APPLICANT: McGarry, Dennis
; TITLE OF INVENTION: RECOMBINANT EXPRESSION OF PROTEINS FROM
; TITLE OF INVENTION: SECRETORY CELL LINES
; NUMBER OF SEQUENCES: 79
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Arnold, White & Durkee
; STREET: P.O. Box 4433
; CITY: Houston
; STATE: Texas
; COUNTRY: USA
; ZIP: 77210
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patent Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/784,582
; FILING DATE: Concurrently Herewith
; CLASSIFICATION: 435
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/028,427
; FILING DATE: 15-OCT-1996
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 08/589,028
; FILING DATE: 19-JAN-1996
; ATTORNEY/AGENT INFORMATION:
; NAME: Highlander, Steven L.
; REGISTRATION NUMBER: 37,642
; REFERENCE/DOCKET NUMBER: UTSD:514
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 512/418-3000
; TELEFAX: 512/474-7577
; INFORMATION FOR SEQ ID NO: 73:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 360 amino acids
; TYPE: amino acid
; STRANDEDNESS:
; TOPOLOGY: linear
; US-08-784-582-73

```

```

Query Match 89.7%; Score 618; DB 3; Length 360;
Best Local Similarity 92.5%; Pred. No. 4.3e-66;
Matches 124; Conservative 3; Mismatches 7; Indels 0; Gaps 0;
OY 2 FPTPLSLRFDNMLRARRLQALAYDTYOEFEEAYILKEOKYSFLONPOTSICFSESIFT 61
Db 27 FPTPLSLRFDNMLRARRLQALAYDTYOEFEEAYILKEOKYSFLONPOTSICFSESIFT 86
OY 62 PSNRKXTOOKSNLELRISILLIOSWLEPVLRSVFANSVLYGASDSNVYRLKDLERG 121
Db 87 PSNRKXTOOKSNLELRISILLIOSWLEPVLRSVFANSVLYGASDSNVYRLKDLERG 146
OY 122 IOTLMWRLEDSGSPR 135
Db 147 IOTLMWRLEDSGSPR 160

```

```

RESULT 12
US-09-465-461-1

```

```

; Sequence 1, Application US/09465461
; Patent No. 6348444
; GENERAL INFORMATION:
; APPLICANT: CHAPPEL, Scott
; TITLE OF INVENTION: Human Growth Hormone to stimulate hematopoiesis and immune rec
; TITLE OF INVENTION: after hematopoietic stem cell transplantation in humans
; FILE REFERENCE: CHAPPEL-6.1
; CURRENT APPLICATION NUMBER: US/09/465,461
; CURRENT FILING DATE: 1999-12-17
; PRIOR APPLICATION NUMBER: 60/112,668
; PRIOR FILING DATE: 1998-12-17
; NUMBER OF SEQ ID NOS: 1
; SOFTWARE: Patent version 3.1
; SEQ ID NO 1
; LENGTH: 191
; TYPE: PRT
; ORGANISM: homo sapiens
; US-09-465-461-1

```

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Query Match 88.8%; Score 612; DB 4; Length 191;
Best Local Similarity 91.8%; Pred. No. 8.7e-66;
Matches 123; Conservative 3; Mismatches 8; Indels 0; Gaps 0;

```

```

OY 2 FPTPLSLRFDNMLRARRLQALAYDTYOEFEEAYILKEOKYSFLONPOTSICFSESIFT 61
Db 1 FPTPLSLRFDNMLRARRLQALAYDTYOEFEEAYILKEOKYSFLONPOTSICFSESIFT 60
OY 62 PSNRKXTOOKSNLELRISILLIOSWLEPVLRSVFANSVLYGASDSNVYRLKDLERG 121
Db 61 PSNRKXTOOKSNLELRISILLIOSWLEPVLRSVFANSVLYGASDSNVYRLKDLERG 120
OY 122 IOTLMWRLEDSGSPR 135
Db 121 IOTLMWRLEDSGSPR 134

```

```

RESULT 13
US-08-187-756C-4
; Sequence 4, Application US/08187756C
; Patent No. 5597709
; GENERAL INFORMATION:
; APPLICANT: ROSEN, ET AL.
; TITLE OF INVENTION: Human Growth Hormone
; NUMBER OF SEQUENCES: 7
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: CARELLA, BYRNE, BAIN, GILFILLAN,
; STREET: 6 BECKER FARM ROAD
; CITY: ROSELAND
; STATE: NEW JERSEY
; COUNTRY: USA
; ZIP: 07068
; COMPUTER READABLE FORM:
; MEDIUM TYPE: 3.5 INCH DISKETTE
; COMPUTER: IBM PS/2
; OPERATING SYSTEM: MS-DOS
; SOFTWARE: WORD PERFECT 5.1
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/187,756C
; FILING DATE: January 27, 1994
; CLASSIFICATION: 435
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER:
; FILING DATE:
; ATTORNEY/AGENT INFORMATION:
; NAME: FERRARO, GREGORY D.
; REGISTRATION NUMBER: 36,134
; REFERENCE/DOCKET NUMBER: 325800-55
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 201-994-1700
; TELEFAX: 201-994-1744
; INFORMATION FOR SEQ ID NO: 4:

```

SEQUENCE CHARACTERISTICS:  
LENGTH: 217 AMINO ACIDS  
TYPE: AMINO ACID  
STRANDEDNESS:  
TOPOLOGY: LINEAR  
MOLECULE TYPE: PROTEIN  
US-08-187-756C-4

Query Match 88.8%; Score 612; DB 1; Length 217;  
Best Local Similarity 91.8%; Pred. No. 1.1e-65;

Matches 123; Conservative 3; Mismatches 8; Indels 0; Gaps 0;

QY 2 FPTPLSLRFLDNAMLRARLYQLAYDTYQEFEEAYILKEQKYSFLQNPOTSLCFSES IPT 61  
|||||  
DB 27 FPTPLSLRFLDNAMLRARLYQLAYDTYQEFEEAYILKEQKYSFLQNPOTSLCFSES IPT 86  
|||||  
QY 62 PSNRKVTQOKSNLELRISLLIQSWLEPVLRSVFANSIYVGASDSNRYRHLKDL EEG 121  
|||||  
DB 87 PSNRKVTQOKSNLELRISLLIQSWLEPVLRSVFANSIYVGASDSNRYRHLKDL EEG 146  
|||||  
QY 122 IOTLMWRLEDGSPR 135  
|||||  
DB 147 IOTLMWRLEDGSPR 160

RESULT 14  
US-08-469-486-51

; Sequence 51, Application US/08469486

; Patent No. 5739281

; GENERAL INFORMATION:

; APPLICANT: Thøgersen, Hans Christian

; APPLICANT: Hollet, Thor Las

; APPLICANT: Etzerodt, Michael

; TITLE OF INVENTION: Improved method for the refolding of

; NUMBER OF SEQUENCES: 58

; CORRESPONDENCE ADDRESS:

; ADDRESSEE: Fish & Richardson

; STREET: 225 Franklin Street

; CITY: Boston

; STATE: Massachusetts

; COUNTRY: USA

; ZIP: 02110-2804

; COMPUTER READABLE FORM:

; MEDIUM TYPE: Floppy disk

; COMPUTER: IBM PC compatible

; OPERATING SYSTEM: PC-DOS/MS-DOS

; SOFTWARE: Patentln Release #1.0, Version

; SOFTWARE: #1.25

; CURRENT APPLICATION DATA:

; APPLICATION NUMBER: US/08/469,486

; FILING DATE:

; CLASSIFICATION: 530

; PRIOR APPLICATION DATA:

; APPLICATION NUMBER: 08/192,060

; FILING DATE: February 4, 1994

; ATTORNEY/AGENT INFORMATION:

; NAME: Paul T. Clark

; REGISTRATION NUMBER: 30,162

; REFERENCE/DOCKET NUMBER: 06363/002001

; TELECOMMUNICATION INFORMATION:

; TELEPHONE: 617 542 5070

; TELEFAX: 617 542 8906

; TELEX: 200154

; INFORMATION FOR SEQ ID NO: 51:

; SEQUENCE CHARACTERISTICS:

; LENGTH: 217 amino acids

; TYPE: amino acid

; STRANDEDNESS:

; TOPOLOGY: linear

; MOLECULE TYPE: protein

US-08-469-486-51

Query Match 88.8%; Score 612; DB 1; Length 217;

Best Local Similarity 91.8%; Pred. No. 1.1e-65;

Matches 123; Conservative 3; Mismatches 8; Indels 0; Gaps 0;

QY 2 FPTPLSLRFLDNAMLRARLYQLAYDTYQEFEEAYILKEQKYSFLQNPOTSLCFSES IPT 61  
|||||  
DB 27 FPTPLSLRFLDNAMLRARLYQLAYDTYQEFEEAYILKEQKYSFLQNPOTSLCFSES IPT 86  
|||||  
QY 62 PSNRKVTQOKSNLELRISLLIQSWLEPVLRSVFANSIYVGASDSNRYRHLKDL EEG 121  
|||||  
DB 87 PSNRKVTQOKSNLELRISLLIQSWLEPVLRSVFANSIYVGASDSNRYRHLKDL EEG 146  
|||||  
QY 122 IOTLMWRLEDGSPR 135  
|||||  
DB 147 IOTLMWRLEDGSPR 160

RESULT 15

US-08-469-658-51

; Sequence 51, Application US/08469658

; Patent No. 5917018

; GENERAL INFORMATION:

; APPLICANT: Thøgersen, Hans Christian

; APPLICANT: Hollet, Thor Las

; APPLICANT: Etzerodt, Michael

; TITLE OF INVENTION: IMPROVED METHOD FOR THE REFOLDING OF

; NUMBER OF SEQUENCES: 58

; CORRESPONDENCE ADDRESS:

; ADDRESSEE: Fish & Richardson P.C.

; STREET: 225 Franklin Street

; CITY: Boston

; STATE: Massachusetts

; COUNTRY: USA

; ZIP: 02110-2804

; COMPUTER READABLE FORM:

; MEDIUM TYPE: Floppy disk

; COMPUTER: IBM PC compatible

; OPERATING SYSTEM: PC-DOS/MS-DOS

; SOFTWARE: Patentln Release #1.0, Version

; SOFTWARE: #1.25

; CURRENT APPLICATION DATA:

; APPLICATION NUMBER: US/08/469,658

; FILING DATE: June 5, 1995

; CLASSIFICATION: 530

; PRIOR APPLICATION DATA:

; APPLICATION NUMBER: 08/192,060

; FILING DATE: February 4, 1994

; ATTORNEY/AGENT INFORMATION:

; NAME: Paul T. Clark

; REGISTRATION NUMBER: 30,162

; REFERENCE/DOCKET NUMBER: 06363/002002

; TELECOMMUNICATION INFORMATION:

; TELEPHONE: 617 542 5070

; TELEFAX: 617 542 8906

; TELEX: 200154

; INFORMATION FOR SEQ ID NO: 51:

; SEQUENCE CHARACTERISTICS:

; LENGTH: 217 amino acids

; TYPE: amino acid

; STRANDEDNESS:

; TOPOLOGY: linear

; MOLECULE TYPE: protein

US-08-469-658-51

Query Match 88.8%; Score 612; DB 2; Length 217;

Best Local Similarity 91.8%; Pred. No. 1.1e-65;

Matches 123; Conservative 3; Mismatches 8; Indels 0; Gaps 0;

QY	2	FPPIPLSLFENAMLRARRRLVQLAYDHYQEEFEENYILKEQKYSFLQNPQSLCFSESIPT	61
Db	27	FPPIPLSLFENAMLRARRRLVQLAYDHYQEEFEENYILKEQKYSFLQNPQSLCFSESIPT	86
QY	62	PSNRKTKQKSNLELRLRISLLIQSWLEPVQLRSVFNANSLVYGASDSNRYRHLKDLDEEG	121
Db	87	PSNRKTKQKSNLELRLRISLLIQSWLEPVQLRSVFNANSLVYGASDSNRYRHLKDLDEEG	146
QY	122	IQTLLMRLLEDGSPR	135
Db	147	IQTLLMRLLEDGSPR	160

Search completed: September 25, 2002, 09:58:41  
Job time: 160 sec



GenCore version 4.5  
Copyright (c) 1993 - 2000 Compen Ltd.

OM protein - protein search, using sw model

Run on: September 25, 2002, 09:58:12 ; Search time 28.13 seconds  
(without alignments)  
461.147 Million cell updates/sec

Title: US-09-819-094-30

Perfect score: 689

Sequence: 1 MPPRIPLSLRFLDNAMLRARR.....KDEEGIQTLMLRLEDGSPR 135

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 283138 seqs, 96089334 residues

Total number of hits satisfying chosen parameters: 283138

Minimum DB seq length: 0

Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database :

1: pir1:\*  
2: pir2:\*  
3: pir3:\*  
4: pir4:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

#### SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	684	99.3	217	1	STHUV
2	646.5	93.8	256	1	STHUV2
3	618	89.7	217	1	STHU
4	592	85.9	217	2	I67410
5	523	75.9	217	2	I67409
6	519	75.3	212	2	I67408
7	517	75.3	217	2	I53267
8	517	75.0	217	2	I67411
9	505	73.3	217	1	LCHUC
10	505	73.3	217	2	E32435
11	474	68.8	215	2	A26449
12	427	62.0	216	2	B49159
13	425	61.7	190	1	STHO
14	424	61.5	180	2	PN0140
15	423	61.4	190	2	JK0219
16	423	61.4	216	1	STPG
17	423	61.4	216	2	I46145
18	423	61.4	216	2	JC4632
19	421	61.1	216	1	STMS
20	421	61.1	216	2	A37782
21	419	60.8	190	1	A61584
22	419	60.8	216	1	STRT
23	417	60.5	190	2	JS0429
24	417	60.5	216	2	S49483
25	403	58.5	217	1	STBO
26	394	57.2	217	1	STSH
27	394	57.2	217	1	STGT
28	394	57.2	217	2	S32682
29	386	56.0	216	2	JC1514

30	383	55.6	216	2	A60509	somatotropin precu
31	378	54.9	191	2	A60625	somatotropin - gre
32	368.5	53.5	216	2	S04929	somatotropin precu
33	346	50.2	199	2	B32435	choriomamotropin-
34	336	48.8	195	2	I51250	somatotropin - bow
35	327	47.5	190	2	S21750	somatotropin - Rus
36	322	46.7	190	2	A56816	somatotropin - bul
37	313	45.4	215	2	I51188	somatotropin - bul
38	312	45.3	215	2	JS0037	somatotropin precu
39	267.5	38.8	183	2	A60623	somatotropin - blu
40	240	34.8	139	2	S04353	somatotropin A - A
41	235	34.1	209	2	UT0483	somatotropin I pre
42	225.5	32.7	163	2	JN0387	somatotropin - sel
43	199	28.9	210	2	I50763	somatotropin - nob
44	199	28.9	210	2	S38351	somatotropin - sil
45	199	28.9	210	2	S21915	somatotropin - sil

#### ALIGNMENTS

##### RESULT 1

STHUV

somatotropin 2 precursor - human

N:Alternate names: growth hormone 2; growth hormone variant; hGH-V; placental somatot N:Contains: somatotropin 2, long splice form; somatotropin 2, short splice form

C:Species: Homo sapiens (man)

C>Date: 17-Dec-1982 #sequence\_revision 10-Feb-1995 #text\_change 21-Jul-2000

C:Accession: D32435; B28072; A01511; I52104; A60711

R:Chen, E.Y.; Liao, Y.C.; Smith, D.H.; Barrera-Saldana, H.A.; Gellinas, R.E.; Seeburg, Genomics 4, 479-497, 1989

A:Title: The human growth hormone locus: nucleotide sequence, biology, and evolution.

A:Reference number: A32435; MUID:89307277

A:Accession: D32435

A:Molecule type: DNA

A:Residues: 1-217 <CH>

A:Cross-References: GB:J03071; NID:q183148; PID:AAA52552.1; PID:q183152

R:Coake, N.E.; Ray, J.; Emery, J.G.; Liebhader, S.A.

J. Biol. Chem. 263, 9001-9006, 1988

A:Title: Two distinct species of human growth hormone-variant mRNA in the human place

A:Reference number: A92725; MUID:88243769

A:Accession: B28072

A:Molecule type: mRNA

A:Residues: 1-217 <CO>

R:Seeburg, P.H.

DNA 1, 239-249, 1982

A:Title: The human growth hormone gene family: nucleotide sequences show recent diver

A:Reference number: A01511; MUID:83182010

A:Accession: A01511

A:Molecule type: DNA

A:Residues: 1-34, 'P', 36-217 <SE>

R:Igout, A.; Scippo, M.L.; Franckenne, F.; Hennen, G.

Arch. Int. Physiol. Biochim. 96, 63-67, 1988

A:Title: Cloning and nucleotide sequence of placental hGH-V cDNA.

A:Reference number: I52104; MUID:89024984

A:Accession: I52104

A>Status: preliminary; translated from GB/EMBL/DBJ

A:Molecule type: mRNA

A:Residues: 1-217 <IG>

A:Cross-References: GB:M38451; NID:q183179; PID:AAA35891.1; PID:q183180

R:Franckenne, F.; Scippo, M.L.; Van Beeumen, J.; Igout, A.; Hennen, G.

J. Clin. Endocrinol. Metab. 71, 15-18, 1990

A:Title: Identification of placental human growth hormone as the growth hormone-V gen

A:Reference number: A60711; MUID:90317018

A:Accession: A60711

A:Molecule type: protein

A:Residues: 27-44;46-57 <FRA>

A:Experimental source: tissue Placenta

A>Note: partial glycosylation was demonstrated by lectin binding

C:Comment: This gene is expressed by the placenta.

C:Genetics:

A:Gene: GDB:GH2

A:Cross-References: GDB:119983; OMIM:139240

A:Map position: 17q22-17q24  
 A:introns: 4/1: 57/3; 97/3; 152/3  
 C:Superfamily: prolactin  
 C:Keywords: alternative splicing; glycoprotein; hormone; placenta  
 F:1-26/Domains: signal sequence #status predicted <SIG>  
 F:27-217/Product: somatotropin 2, long splice form #status predicted <SOL>  
 F:27-57,73-217/Product: somatotropin 2, short splice form #status predicted <SOS>  
 F:79-191,208-215/Dissulfide bonds: #status predicted  
 F:166/Binding site: carbohydrate (asn) (covalent) #status predicted

Query Match 99.3%; Score 684; DB 1; Length 217;  
 Best Local Similarity 100.0%; Pred. No. 1.6e-59;  
 Matches 134; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 2 FFTILSLRFDNAMLRRRLVQLADYDYOEFEEAYILKEQKYSFLQNPOTSICSESIP 61  
 DB 27 FFTILSLRFDNAMLRRRLVQLADYDYOEFEEAYILKEQKYSFLQNPOTSICSESIP 86  
 QY 62 PSNRVKTQOKSNLELLRLISLLIQSWLEPVLRSVFANSLSVYGASDSNVYRHLKDEEG 121  
 DB 87 PSNRVKTQOKSNLELLRLISLLIQSWLEPVLRSVFANSLSVYGASDSNVYRHLKDEEG 146  
 QY 122 IOTLMWRLEDGSPR 135  
 DB 147 IOTLMWRLEDGSPR 160

RESULT 2  
 STRHU2  
 somatotropin 2 precursor, splice form 2 - human  
 N:Alternate names: growth hormone variant-2; placental somatotropin form 2  
 C:Species: Homo sapiens (man)  
 C:Dates: 30-Sep-1983 #sequence\_revision 10-Feb-1995 #text\_change 02-Sep-1997  
 C:Accession: A28072  
 R:Cooke, N.E.; Ray, J.; Emery, J.G.; Liebhauer, S.A.  
 J. Biol. Chem. 263, 9001-9006, 1988  
 A:Title: Two distinct species of human growth hormone-variant mRNA in the human placenta  
 A:Reference number: A92725; MUID:88243769  
 A:Accession: A28072  
 A:Molecule type: mRNA  
 A:Residues: 1-256 <COO>  
 A>Note: an alternative splice junction for intron 4 is used  
 C:Genetics:  
 A:Gene: GDB:GH2  
 A:Cross-references: GDB:119983; OMIM:139240  
 A:Map position: 17q22-17q24  
 A:introns: 4/1: 57/3; 97/3; 152/3  
 C:Superfamily: prolactin  
 C:Keywords: alternative splicing; hormone; placenta  
 F:1-26/Domains: signal sequence #status predicted <SIG>  
 F:27-256/Product: somatotropin 2 splice form 2 #status predicted <MAT>

Query Match 93.8%; Score 646.5; DB 1; Length 256;  
 Best Local Similarity 96.3%; Pred. No. 8.9e-56;  
 Matches 129; Conservative 1; Mismatches 3; Indels 1; Gaps 1;

QY 2 FFTILSLRFDNAMLRRRLVQLADYDYOEFEEAYILKEQKYSFLQNPOTSICSESIP 61  
 DB 27 FFTILSLRFDNAMLRRRLVQLADYDYOEFEEAYILKEQKYSFLQNPOTSICSESIP 86  
 QY 62 PSNRVKTQOKSNLELLRLISLLIQSWLEPVLRSVFANSLSVYGASDSNVYRHLKDEEG 121  
 DB 87 PSNRVKTQOKSNLELLRLISLLIQSWLEPVLRSVFANSLSVYGASDSNVYRHLKDEEG 146  
 QY 122 IOTLMWRLEDGSPR 134  
 DB 147 IOTLMWRLEDGSPR 160

RESULT 3  
 STRHU

somatotropin 1 precursor [validated] - human  
 N:Alternate names: growth hormone 1; hGH-N; pituitary somatotropin  
 N:Contents: growth hormone 5K peptide; somatotropin 1, long form; somatotropin 1, sho  
 C:Species: Homo sapiens (man)  
 C:Dates: 24-Apr-1984 #sequence\_revision 10-Feb-1995 #text\_change 08-Dec-2000  
 C:Accession: A93731; A32435; A93694; A94247; A90051; A93397; A93778; A91764; A90217;  
 R:Denoto, F.M.; Moore, D.D.; Goodman, H.M.  
 Nucleic Acids Res. 9, 3719-3730, 1981  
 A:Title: Human growth hormone DNA sequence and mRNA structure: possible alternative s  
 A:Reference number: A93731; MUID:82014939  
 A:Accession: A93731  
 A:Molecule type: DNA  
 A:Residues: 1-217 <DEN>  
 A:Cross-references: GB:V00520  
 A>Note: The 20K short form somatotropin lacks residues 58-72 (32-46 in the active hor  
 R:Chen, E.Y.; Liao, Y.C.; Smith, D.H.; Barrera-Saldana, H.A.; Gellinas, R.E.; Seeburg,  
 Genomics 4, 479-497, 1989  
 A:Title: The human growth hormone locus: nucleotide sequence, biology, and evolution.  
 A:Reference number: A32435; MUID:89307277  
 A:Accession: A32435  
 A:Molecule type: DNA  
 A:Residues: 1-217 <CHE>  
 A:Cross-references: GB:J03071; NID:g183148; PIDN:AAA52549.1; PID:g183149  
 R:Roskam, M.; Rougeon, F., 305-320, 1979  
 Nucleic Acids Res. 7, 305-320, 1979  
 A:Title: Molecular cloning and nucleotide sequence of the human growth hormone struct  
 A:Reference number: A93694; MUID:80034477  
 A:Accession: A93694  
 A:Molecule type: mRNA  
 A:Residues: 1-217 <ROS>  
 A:Cross-references: GB:V00519  
 A>Note: 35-pio was also found  
 R:Marlial, J.A.; Halliwell, R.A.; Baxter, J.D.; Goodman, H.M.  
 Science 205, 602-607, 1979  
 A:Title: Human growth hormone: complementary DNA cloning and expression in bacteria.  
 A:Reference number: A94247; MUID:79203293  
 A:Accession: A94247  
 A:Molecule type: mRNA  
 A:Residues: 1-217 <MAR>  
 R:Li, C.H.; Dixon, J.S.; Liu, W.K.  
 Arch. Biochem. Biophys. 133, 70-91, 1969  
 A:Title: Human pituitary growth hormone, XXXII. The primary structure of the hormone.  
 A:Reference number: A90048; MUID:69289202  
 A:Contents: annotation  
 R:Li, C.H.; Dixon, J.S.  
 Arch. Biochem. Biophys. 146, 233-236, 1971  
 A:Title: Human pituitary growth hormone, XXXII. The primary structure of the hormone:  
 A:Reference number: A90051; MUID:72143935  
 A:Accession: A90051  
 A:Molecule type: protein  
 A:Residues: 27-94;96-217 <LIC>  
 R:Niall, H.D.  
 Nature New Biol. 230, 90-91, 1971  
 A:Title: Revised primary structure for human growth hormone.  
 A:Reference number: A93397; MUID:71139765  
 A:Accession: A93397  
 A:Molecule type: protein  
 A:Residues: 27-51 <NIA>  
 R:Niall, H.D.; Hogan, M.L.; Sauer, R.; Rosenblum, I.Y.; Greenwood, F.C.  
 Proc. Natl. Acad. Sci. U.S.A. 68, 866-869, 1971  
 A:Title: Sequences of pituitary and placental lactogenic and growth hormones: evoluit  
 A:Reference number: A93778; MUID:71153968  
 A:Accession: A93778  
 A:Molecule type: protein  
 A:Residues: 119-120;157-159 <NI2>  
 R:Niall, H.D.  
 in Prolactin and Carcinogenesis. Proc. Fourth Tenovus Workshop Prolactin, Griffiths,  
 A:Title: The chemistry of the human lactogenic hormones.  
 A:Reference number: A94427  
 A:Contents: annotation; somatotropin revision  
 R:Bewley, T.A.; Dixon, J.S.; Li, C.H.  
 Int. J. Pept. Protein Res. 4, 281-287, 1972  
 A:Title: Sequence comparison of human pituitary growth hormone, human chorionic somat

A:Reference number: A91764; MUID:73092028  
A:Accession: A91764  
A:Molecule type: protein  
A:Residues: 27-217 <BEM>  
R:Lewis, U.J.; Bonewald, L.F.; Lewis, L.J.,  
Biochem. Biophys. Res. Commun. 92, 511-516, 1980  
A:Title: The 20,000-dalton variant of human growth hormone: location of the amino acid  
A:Reference number: A90217; MUID:80130196  
A:Contents: somatotropin, 20K short variant  
A:Accession: A90217  
A:Molecule type: protein  
A:Residues: 46-57,73-80 <LEM>  
R:Chapman, G.E.; Rogers, K.M.; Brittain, T.; Bradshaw, R.A.; Bates, O.J.; Turner, C.; Ca  
J Biol. Chem. 256, 2395-2401, 1981  
A:Title: The 20,000 molecular weight variant of human growth hormone. Preparation and so  
A:Reference number: A92311; MUID:81117361  
A:Contents: somatotropin, 20K short variant  
A:Accession: A92311  
A:Molecule type: protein  
A:Residues: 27-57,73-79 <CHA>  
R:Singh, R.N.P.; Seavey, B.K.; Lewis, L.J.; Lewis, U.J.  
J Protein Chem. 2, 425-436, 1983  
A:Title: Human growth hormone peptide 1-43: isolation from pituitary glands.  
A:Reference number: A61466  
A:Accession: A61466  
A:Molecule type: protein  
A:Residues: 27-69 <SIN>  
A:Note: growth hormone 5K peptide has insulin potentiating activity; its physiological f  
R:Robson, V.M.J.; Rae, I.D.; NG, F.  
Biol. Chem. Hoppe-Seyler 371, 423-431, 1990  
A:Title: Identification of the aspartamide structure in a previously-reported peptide.  
A:Reference number: S09685; MUID:90334745  
A:Accession: S09685  
A:Molecule type: protein  
A:Residues: 27-34, 'L', 36-47 <ROB>  
R:de Vos, A.M.; Ultsch, M.; Kossiakoff, A.A.  
Science 255, 306-312, 1992  
A:Title: Human growth hormone and extracellular domain of its receptor: crystal structur  
A:Reference number: A41728; MUID:92196577  
A:Contents: annotation: X-ray crystallography, 2.8 angstroms  
A:Note: the structure of the complex with growth hormone receptor is described  
R:Gray, G.L.; Baldridge, J.S.; McKeown, K.S.; Heyneker, H.L.; Chang, C.N.  
Gene 39, 247-254, 1985  
A:Title: Periplasmic production of correctly processed human growth hormone in Escherich  
A:Reference number: I41126; MUID:86137393  
A:Accession: I41126  
A:Status: preliminary; translated from GB/EMBL/DBD  
A:Molecule type: mRNA  
A:Residues: 1-26 <RES>  
A:Cross-references: M14398; NID:G183158; PIDN:AA52554.1; PID:G183159  
C:Comment: The gene for this hormone is transcribed only in somatotrophic cells of the e  
C:Comment: About 90% of somatotropin is the 22K long form.  
C:Genetics:  
A:Gene: GDB:GHI  
A:Cross-references: GDB:119982; OMIM:139250  
A:Map position: 17q23.1-17q23.3  
A:Introns: 4/1; 57/3; 97/3; 152/3  
C:Superfamily: prolactin  
C:Keywords: alternative splicing; hormone; pituitary  
F:1-26/Domain: signal sequence #status predicted <SIG>  
F:27-217/Product: somatotropin 1, long form #status experimental <SOL>  
F:27-69/Product: growth hormone 5K peptide #status experimental <5K>  
F:27-57,73-217/Product: somatotropin 1, short form #status experimental <SOS>  
F:79-191,208-215/Dissulfide Bonds: #status experimental

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Query Match      89.7%  Score 618: DB 1: Length 217;
Best Local Similarity 92.5%  Pred No. 4.5e-53;
Matches 124; Conservative 3; Mismatches 7; Indels 0; Gaps 0;

QY      2  FPTPLSLRFLDPMALRRARLYOLAYTTFYVEFEAYTLKEQKYSFLQNPQSLCFSESIPP 61
Db      27  FPTPLSLSEFLDPMALRRARLHQLQAFQTYQEFEEAYLPEEQKYSFLQNPQSLCFSESIPP 86

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Oy 62 PSNRVTKQOKSNLELRISLLTIQSMLEPVOLRSVANSIYVGASDSNRYRLKDLDEG 121
      ||||| :||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 87 PSNRFEYQOKSNLELRISLLTIQSMLEPVOLRSVANSIYVGASDSNRYRLKDLDEG 146

Oy 122 IOTLMWRLEDSGSPR 135
      ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 147 IOTLMGRLEDSGSPR 160

RESULT 4
167410
somatotropin - rhesus macaque
N:Alternate names: growth hormone
C:Species: Macaca mulatta (rhesus macaque)
C:Date: 31-May-1996 #sequence_revision 31-May-1996 #text_change 16-Jul-1999
C:Accession: 167410; A05094
R:Golios, T.G.; Durning, M.; Fisher, J.M.; Fowler, P.D.
Endocrinology 133, 1744-1752, 1993
A:Title: Cloning of four growth hormone/chorionic somatomotropin-related complemen
A:Reference number: 153267; MUID:94008724
A:Accession: 167410
A:Status: translated from GB/EMBL/DBJ
A:Molecule type: mRNA
A:Residues: 1-217 <RES>
A:Cross-references: GB:LI6556; NID:9293114; PIDN:AAI18842.1; PID:9293115
R:Li, C.H.; Chung, D.; Lamm, H.W.; Stein, S.
Arch. Biochem. Biophys. 245, 287-291, 1986
A:Title: The primary structure of monkey pituitary growth hormone.
A:Reference number: A05094; MUID:86129460
A:Accession: A05094
A:Molecule type: protein
A:Residues: 27-99/'0/'101-178/'D/'180-217 <LIC>
A>Note: the monkey species is not identified in the reference
R:Raben, M.S.
Science 125, 883-884, 1957
A:Title: Preparation of growth hormone from pituitaries of man and monkey.
A:Reference number: A44774
A:Contents: annotation; identification of source organism
C:Superfamily: prolactin

Query Match 85.9%; Score 592; DB 2; Length 217;
Best Local Similarity 89.6%; Pred. No. 1,6e-50;
Matches 120; Conservative 4; Mismatches 10; Indels 0; Gaps 0;

Oy 2 FFTPLSRFDNMLRRRLRYLAYDYDFEFAVILKEQKYSFLQNPQSLCFSSISPT 61
      ||||| :||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 27 FFTPLSLSDNMLRRRLRHQLAFPTYGFPEFAIIPREKQYSFLQNPQSLCFSSISPT 86

Oy 62 PSNRVTKQOKSNLELRISLLTIQSMLEPVOLRSVANSIYVGASDSNRYRLKDLDEG 121
      ||||| :||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 87 PSNRFEYQOKSNLELRISLLTIQSMLEPVOLRSVANSIYVGTSYSDVYDLKDLDEG 146

Oy 122 IOTLMWRLEDSGSPR 135
      ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 147 IOTLMGRLEDSGSPR 160

RESULT 5
167409
chorionic somatomotropin-3 - rhesus macaque
C:Species: Macaca mulatta (rhesus macaque)
C:Date: 31-May-1996 #sequence_revision 31-May-1996 #text_change 16-Jul-1999
C:Accession: 167409
R:Golios, T.G.; Durning, M.; Fisher, J.M.; Fowler, P.D.
Endocrinology 133, 1744-1752, 1993
A:Title: Cloning of four growth hormone/chorionic somatomotropin-related complemen
A:Reference number: 153267; MUID:94008724
A:Accession: 167409
A:Status: preliminary; translated from GB/EMBL/DBJ
A:Molecule type: mRNA
A:Residues: 1-217 <RES>

```

A:Cross-references: GB:U16554; NID:g293112; PIDN:AAA18840.1; PID:g293113  
C:Superfamily: prolactin

Query Match 75.9%; Score 523; DB 2; Length 217;  
Best Local Similarity 76.7%; Pred. No. 8.9e-44;  
Matches 102; Conservative 16; Mismatches 15; Indels 0; Gaps 0;

OY 3 PTPLSRFLFDNMLRARRLYQLAYDTYQFEFEAYILKEOKYSFLQNPQTSICFSESIPTP 62  
DB 28 PSVPLSRFLFDNMLRARRLYQLAYDTYQFEFEAYILKEOKYSFLQNPQTSICFSESIPTP 87  
OY 63 SNRKTKOQKSNLELRISLLIOSWLEPYQLRSVFANSIYVYASDSNVYRHLKDLDEGI 122  
DB 88 SNRETKOQKSNLELRISLLIOSWLEPYQLRSVFANSIYVYASDSNVYRHLKDLDEGI 147  
OY 123 QTLMMRLDGSPPR 135  
DB 148 ETLMMRLDGSPPR 160

RESULT 6  
167408  
Chorionic somatomammotropin-2 - rhesus macaque (fragment)  
C:Species: Macaca mulatta (rhesus macaque)  
C:Date: 31-May-1996 #sequence\_revision 31-May-1996 #text\_change 16-Jul-1999  
C:Accession: 167408  
R:Golof, T.G.; Durning, M.; Fisher, J.M.; Fowler, P.D.  
Endocrinology 133, 1744-1752, 1993  
A:Title: Cloning of four growth hormone/chorionic somatomammotropin-related complementar  
A:Reference number: 153267; MUID:94008724  
A:Accession: 167408  
A:Status: preliminary; translated from GB/EMBL/DBJ  
A:Molecule type: mRNA  
A:Residues: 1-212 <RES>  
A:Cross-references: GB:U16553; NID:g293110; PIDN:AAA18840.1; PID:g293111  
C:Superfamily: prolactin

Query Match 75.3%; Score 519; DB 2; Length 212;  
Best Local Similarity 74.4%; Pred. No. 2.1e-43;  
Matches 99; Conservative 20; Mismatches 14; Indels 0; Gaps 0;

OY 3 PTPLSRFLFDNMLRARRLYQLAYDTYQFEFEAYILKEOKYSFLQNPQTSICFSESIPTP 62  
DB 23 PSVPLSRFLFDNMLRARRLYQLAYDTYQFEFEAYILKEOKYSFLQNPQTSICFSESIPTP 82  
OY 63 SNRKTKOQKSNLELRISLLIOSWLEPYQLRSVFANSIYVYASDSNVYRHLKDLDEGI 122  
DB 83 SNRETKOQKSNLELRISLLIOSWLEPYQLRSVFANSIYVYASDSNVYRHLKDLDEGI 142  
OY 123 QTLMMRLDGSPPR 135  
DB 143 ETLMMRLDGSPPR 155

RESULT 7  
153267  
Chorionic somatomammotropin-1 - rhesus macaque  
C:Species: Macaca mulatta (rhesus macaque)  
C:Date: 31-May-1996 #sequence\_revision 31-May-1996 #text\_change 16-Jul-1999  
C:Accession: 153267  
R:Golof, T.G.; Durning, M.; Fisher, J.M.; Fowler, P.D.  
Endocrinology 133, 1744-1752, 1993  
A:Title: Cloning of four growth hormone/chorionic somatomammotropin-related complementar  
A:Reference number: 153267; MUID:94008724  
A:Accession: 153267  
A:Status: preliminary; translated from GB/EMBL/DBJ  
A:Molecule type: mRNA  
A:Residues: 1-217 <RES>  
A:Cross-references: GB:U16552; NID:g293108; PIDN:AAA18839.1; PID:g293109  
C:Superfamily: prolactin

Query Match 75.3%; Score 519; DB 2; Length 217;  
Best Local Similarity 74.4%; Pred. No. 2.2e-43;  
Matches 99; Conservative 20; Mismatches 14; Indels 0; Gaps 0;

OY 3 PTPLSRFLFDNMLRARRLYQLAYDTYQFEFEAYILKEOKYSFLQNPQTSICFSESIPTP 62  
DB 28 PSVPLSRFLFDNMLRARRLYQLAYDTYQFEFEAYILKEOKYSFLQNPQTSICFSESIPTP 87  
OY 63 SNRKTKOQKSNLELRISLLIOSWLEPYQLRSVFANSIYVYASDSNVYRHLKDLDEGI 122  
DB 88 SNRETKOQKSNLELRISLLIOSWLEPYQLRSVFANSIYVYASDSNVYRHLKDLDEGI 147  
OY 123 QTLMMRLDGSPPR 135  
DB 148 ETLMMRLDGSPPR 160

RESULT 8  
167411  
somatotropin - rhesus macaque  
N:Alternate names: growth hormone  
C:Species: Macaca mulatta (rhesus macaque)  
C:Date: 31-May-1996 #sequence\_revision 31-May-1996 #text\_change 16-Jul-1999  
C:Accession: 167411  
R:Golof, T.G.; Durning, M.; Fisher, J.M.; Fowler, P.D.  
Endocrinology 133, 1744-1752, 1993  
A:Title: Cloning of four growth hormone/chorionic somatomammotropin-related complemen  
A:Reference number: 153267; MUID:94008724  
A:Accession: 167411  
A:Status: preliminary; translated from GB/EMBL/DBJ  
A:Molecule type: mRNA  
A:Residues: 1-217 <RES>  
A:Cross-references: GB:U16555; NID:g293116; PIDN:AAA20180.1; PID:g293117  
C:Superfamily: prolactin

Query Match 75.0%; Score 517; DB 2; Length 217;  
Best Local Similarity 76.9%; Pred. No. 3.4e-43;  
Matches 103; Conservative 14; Mismatches 17; Indels 0; Gaps 0;

OY 2 FTPLSRFLFDNMLRARRLYQLAYDTYQFEFEAYILKEOKYSFLQNPQTSICFSESIPTP 61  
DB 27 PSVPLSRFLFDNMLRARRLYQLAYDTYQFEFEAYILKEOKYSFLQNPQTSICFSESIPTP 86  
OY 62 PSNRKTKOQKSNLELRISLLIOSWLEPYQLRSVFANSIYVYASDSNVYRHLKDLDEGI 121  
DB 87 PSNRKTKOQKSNLELRISLLIOSWLEPYQLRSVFANSIYVYASDSNVYRHLKDLDEGI 146  
OY 122 QTLMMRLDGSPPR 135  
DB 147 IOTLMGRLEDGSPPR 160

RESULT 9  
LCRHC  
Chorionomammotropin A precursor [validated] - human  
N:Alternate names: chorionic somatomammotropin 1; placental lactogen  
C:Species: Homo sapiens (man)  
C:Date: 23-Oct-1981 #sequence\_revision 23-Oct-1981 #text\_change 08-Dec-2000  
C:Accession: C32435; A94422; A93833; A93192; A90054; A94427; A61283; I55229;  
R:Chen, E.Y.; Liao, Y.C.; Smith, D.H.; Barreira-Saldana, H.A.; Gellinas, R.E.; Seeburg,  
Genomics 4, 479-497, 1989  
A:Title: The human growth hormone locus: nucleotide sequence, biology, and evolution.  
A:Reference number: A32435; MUID:89307277  
A:Accession: C32435  
A:Molecule type: DNA  
A:Residues: 1-217 <CHE>  
A:Cross-references: GB:J03071; NID:g183148; PIDN:AAA52551.1; PID:g183151  
R:Goodman, H.M.; DeWoto, F.; Fiddes, J.C.; Halliwell, R.A.; Page, G.S.; Smith, S.; Ti  
in Mobilization and Reassembly of Genetic Information, Scott, W.A., Werner, R., Josep  
A:Reference number: A94422  
A:Accession: A94422

A: Molecule type: mRNA  
A: Residues: 1-217 <GCO>  
R: Tanaka, M.; Masuda, N.; Watahiki, M.; Yamakawa, M.; Shimizu, K.; Nagai, J.; Nakashima, N. *Biochem. Int.* 16, 287-292, 1988  
A: Title: cDNA cloning of human chorionic somatomammotropin-1 mRNA whose transcription was induced by prolactin  
A: Reference number: 152342; MUID: 88209096  
A: Accession: 152342  
A: Status: translated from GB/EMBL/DBJ  
A: Molecule type: mRNA  
A: Residues: 1-3 <TAN>  
A: Cross-references: GB:M35419; NID:g506822  
R: Sherwood, L.M.; Burstein, Y.; Schechter, I. *Proc. Natl. Acad. Sci. U.S.A.* 76, 3819-3823, 1979  
A: Title: Primary structure of the NH-2-terminal extra piece of the precursor to human placental prolactin  
A: Reference number: A93833; MUID: 80034970  
A: Accession: A93833  
A: Molecule type: protein  
A: Residues: 1,3-26 <SHE>  
A: Experimental source: Placenta  
R: Shine, J.; Seeburg, P.H.; Martial, J.A.; Baxter, J.D.; Goodman, H.M. *Nature* 270, 484-489, 1977  
A: Title: Construction and analysis of recombinant DNA for human chorionic somatomammotropin  
A: Reference number: A93192; MUID: 78071761  
A: Accession: A93192  
A: Molecule type: DNA  
A: Residues: 50-217 <SHI>  
A: Experimental source: Placenta  
R: Li, C.H.; Dixon, J.S.; Chung, D. *Arch. Biochem. Biophys.* 155, 95-110, 1973  
A: Title: Amino acid sequence of human chorionic somatomammotropin.  
A: Reference number: A90054; MUID: 73201971  
A: Accession: A90054  
A: Molecule type: protein  
A: Residues: 27-217 <LIC>  
A: Experimental source: Placenta  
R: Ball, H.D. *In* Prolactin and Carcinogenesis, Proc. Fourth Tenovus Workshop Prolactin, Griffiths, K., ed., pp. 1-10, 1979  
A: Title: The chemistry of the human lactogenic hormones.  
A: Reference number: A94427  
A: Accession: A94427  
A: Molecule type: protein  
A: Residues: 27-217 <NIA>  
A: Experimental source: Placenta  
R: Nic A Bhaird, N.; Tipton, K.F. *Biochem. Soc. Trans.* 19, 205, 1991  
A: Title: Catechol-O-methyltransferase from human placenta: purification and some properties  
A: Reference number: A61283; MUID: 91244006  
A: Accession: A61283  
A: Molecule type: protein  
A: Residues: 27-46 <NTC>  
A: Note: Chorionmammotropin apparently copurified with placental catechol-O-methyltransferase  
R: Sherwood, L.M.; Handwerker, S.; McTaurin, W.D.; Lanner, M. *Nature New Biol.* 233, 59-61, 1971  
A: Title: Amino-acid sequence of human placental lactogen.  
A: Reference number: A93401; MUID: 72016313  
A: Accession: A93401  
A: Contents: annotation  
R: Sherwood, L.M.; Handwerker, S.; McTaurin, W.D.; Lanner, M. *Nature New Biol.* 235, 64, 1972  
A: Reference number: A93405  
A: Contents: annotation  
R: Schneider, A.B.; Kowalski, K.; Russell, J.; Sherwood, L.M. *J. Biol. Chem.* 254, 3782-3787, 1979  
A: Title: Identification of the interchain disulfide bonds of dimeric human placental lactogen  
A: Reference number: A92251; MUID: 79173081  
A: Accession: A92251  
A: Contents: annotation; dimeric disulfide bonds  
R: Selby, M.J.; Batta, A.; Baxter, J.D.; Bell, G.I.; Eberhardt, N.L. *J. Biol. Chem.* 259, 13131-13138, 1984  
A: Title: Analysis of a major human chorionic somatomammotropin gene. Evidence for two functional alleles  
A: Reference number: 155229; MUID: 85030426  
A: Accession: 155229  
A: Status: translated from GB/EMBL/DBJ  
A: Molecule type: DNA  
A: Residues: 1-217 <RES>

A:Cross-references: GB:K02401; NID:g181120; PIDN:AA52115.1; PID:g181121  
R:Seeburg, P.H.; Shine, J.; Martial, J.A.; Ullrich, A.; Goodman, H.  
Trans. Assoc. Am. Physicians 90, 109-116, 1977  
A:Title: Nucleotide sequence of a human gene coding for a polypeptide hormone.  
A:Reference number: 159658; MUID:78160787  
A:Accession: 159658  
A:Status: translated from GB/EMBL/DBJ  
A:Molecule type: mRNA  
A:Residues: 160-217 <RE2>  
A:Cross-references: GB:M25118; NID:g181124; PIDN:AA35721.1; PID:g181125  
C:Genetics:  
A:Gene: GDB:CSH1  
A:Cross-references: GDB:119084; OMTM:150200  
A:Map position: 17q22-17q24  
A:Introns: 4/1; 57/3; 97/3; 152/3  
C:Superfamily: prolactin  
C:Keywords: hormone; placenta  
F:1-26/Domain: signal sequence #status experimental <SIG>  
F:27-217/Product: chorionomotropin A #status experimental <MAT>  
F:79-191/Disulfide bonds: #status experimental  
F:208-215/Disulfide bonds: (in monomeric form) #status experimental  
F:208/Disulfide bonds: interchain (to 215 in dimeric form) #status experimental  
F:215/Disulfide bonds: interchain (to 208 in dimeric form) #status experimental

[illegible]

RESULT 10  
E32435  
chorionamniototropin B precursor - human  
N:Alternate names: chorionic somatomamotropin 2  
C:Species: Homo sapiens (man)  
C:Date: 29-Dec-1989 #sequence\_revision 29-Dec-1989 #text\_change 16-Jul-1999  
C:Accession: E32435  
R:Chen, E.Y.; Liao, Y.C.; Smith, D.H.; Barrera-Saldana, H.A.; Gelinias, R.E.; Seeburg,  
Genomics 4, 479-497, 1989  
A:Title: The human growth hormone locus: nucleotide sequence, biology, and evolution.  
A:Reference number: A52455; MUID:89307277  
A:Accession: E32435  
A:Status: preliminary  
A:Molecule type: DNA  
A:Residues: 1-217 <CHR>  
A:Cross-references: GB:J03071; NID:g189148; PIDN:AAA52553.1; PID:g183153  
C:Genetics:  
A:Gene: GDB:CSH2  
A:Cross-references: GDB:119813; OMIM:118820  
A:Map position: 17q22-17q24  
C:Superfamily: prolactin

```

Query Match 73.3% Score 505 DB 2: Length 211;
          76.5% Pred No. 5,1e-42;
Best Local Similarity
Matches 101; Conservative 13; Mismatches 18; Indels 0; Gaps 0;

QY 4 TTPSLRFLDAMLRARLYQLAVDYIQEEFVYLIKEDKYSFLDMPOTSICFSESIPPTS 63
      +:::|:::|:::|:::|:::|:::|:::|:::|:::|:::|:::|:::|:::|:::|:::|
db 29 TVPLSRFLDAMLRARHARHQLIDYQEEFVYIPKDKYSFLDSDSCFSDSPPTS 88
      +:::|:::|:::|:::|:::|:::|:::|:::|:::|:::|:::|:::|:::|:::|:::

```

QY	124	TLMRLEDSGR	135
QY	64	NAKYTKQKNEMLLITSLILQSMLEVOGLRSPFANSLYGCASPNYRHLKLDREGIO	123
Db	89	NMEYTKQKNEMLLITSLILQSMLEVOGLRSPFANSLYGCASPNYRHLKLDREGIO	148
QY	149	TLMGRLEDSGR	160

RESULT 11

A26449

choriomamototropin precursor (allele hCS-3) - human

C:Species: Homo sapiens (man)

C:Date: 30-Jun-1988 #sequence\_revision 30-Jun-1988 #text\_change 28-Jul-1995

C:Accession: A26449

R:Rt:Rt, H.: Kimmelman, J.; Birnbaum, M.J.; Chen, E.Y.; Seeburg, P.H.; Eberhardt, N.L.; Be

DNA 6, '59-'70, 1987

A:Title: The human growth hormone gene locus: structure, evolution, and allelic variation

A:Reference number: A26449; MUID:87161235

A:Accession: A26449

A:Molecule type: DNA

A:Residues: 1-215 <HtR>

C:Superfamily: prolactin

F:1-26/Domain: signal sequence #status predicted <SIG>

F:27-215/Product: choriomamototropin, hCS-3 allele #status predicted <MAT>

Query Match	68.8%;	Score 474;	DB 2;	Length 215;
Best Local Similarity	74.2%;	Pred. No. 5.5e-39;		
Matches 98;	Conservative 14;	Mismatches 18;	Indels 2;	Gaps 2

[illegible]

RESULT 12  
B49159  
somatotropin - golden hamster  
N:Alternate names: growth hormone  
C:Species: Mesocricetus auratus (golden hamster)  
C>Date: 19-Dec-1993 #sequence\_revision 18-Nov-1994 #text\_change 21-Jul-2000  
C/Accession: B49159  
R:Southard, J.N.; Sanchez-Jimenez, F.; Campbell, G.T.; Talamantes, F.  
Endocrinology 129, 2965-2971, 1991  
A:Title: Sequence and expression of hamster prolactin and growth hormone messenger RNAs  
A:Reference number: A49159; MUID:92063850  
A:Accession: B49159  
A>Status: preliminary  
A:Molecule type: mRNA  
A:Residues: 1216 <SOU>  
A:Cross-references: GB:566299; NID:g239355; PID:AAB20368.1; PID:g239356  
A:Note: Sequence extracted from NCBI backbone (NCBIN:66299, NCBIPI:66300)  
A:Superfamily: prolactin

[illegible]

	: :   : :   :   :   :   :   :   :   :   :   :   :   :	
D <sub>b</sub>	86 PTKKEAQRSMWELLRLSLIIQSILGPPVQFLSRITNSLMFGTSD-RVYEKLKDLEEG	144
	: :   : :   :   :   :   :   :   :   :   :   :   :   :	
Qy	122 IQTLMNRLEDGSPR	135
D <sub>b</sub>	145 IQALMQELEDGSPR	158

RESULT 13

STHO

somatotropin - horse

N:Alternate names: growth hormone

C:Species: Equus caballus (domestic horse)

C:Date: 13-Jul-1981 #sequence\_revision 13-Jul-1981 #text\_change 23-Aug-1996

C:Accession: A91772; A91395; A91383; A90240; A01514

R:Zaklin, M.M.; Poskus, E.; Langton, A.A.; Ferrara, P.; Santome, J.A.; Dellacha, J.N.

Int. J. Pept. Protein Res. 8, 435-444, 1976

A:Title: Primary structure of equine growth hormone.

A:Reference number: A91772; MUID:77005410

A:Accession: A91772

A:Molecule type: protein

A:Residues: 1-190 <ZAK>

R:Zaklin, M.M.; Poskus, E.; Dellacha, J.M.; Paladini, A.C.; Santome, J.A.

FEBS Lett. 34, 353-355, 1973

A:Title: The amino acid sequence of equine growth hormone.

A:Reference number: A91395; MUID:74020362

A:Accession: A91395

A:Molecule type: protein

A:Residues: 1-190 <ZAK>

R:Zaklin, M.M.; Poskus, E.; Dellacha, J.M.; Paladini, A.C.; Santome, J.A.

FEBS Lett. 25, 77-82, 1972

A:Title: Amino acid sequences around the cystine residues in equine growth hormone

A:Reference number: A91383

A:Accession: A91383

A:Molecule type: protein

A:Residues: 42-69;157-190 <ZAK>

Biochem. J. 109, 19-24, 1968

A:Title: Amino acid sequences around the cystine residues in horse growth hormone.

A:Reference number: A90240; MUID:68368390

A:Accession: A90240

A:Molecule type: protein

A:Residues: 176-190 <OLIV>

C:Superfamily: prolactin

C:Keywords: hormone; pituitary

;52-163;180-188/Disulfide bonds: #status experimental

[illegible]

```

RESULTS      1*
PNO140
somatotropin - sei whale
N:Alternate names: growth hormone
C:Species: Halaplophrys borealis (sei whale)
C:Date: 07-May-1993 #sequence_revision 07-May-1993 #text_change 07-May-1999
C:Accession: PNO140
C:Judev, N.A.; Pankov, Y.A.; Bulatov, A.A.; Osipova, T.A.

```







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OM protein - protein search, using sw model

Run on: September 25, 2002, 09:59:52 ; Search time 15.8 Seconds

(without alignments)  
330.832 Million cell updates/sec

Title: US-09-819-094-30

Sequence: 689  
1 MFPTPLSRLEFDNMLRARR.....KDEEGTQITLMWRLEDSPPR 135

Scoring table:

BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 105224 seqs, 38719550 residues

Total number of hits satisfying chosen parameters: 105224

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Database : SwissProt\_40.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

#### SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	67.9	98.5	217	1	SOMV_HUMAN P01242 homo sapien
2	641.5	93.1	256	1	SOMA_HUMAN P09587 homo sapien
3	618	89.7	217	1	SOMA_HUMAN P01241 homo sapien
4	593	86.1	217	1	SOMA_SAIIB P58343 salmirl hol
5	592	85.9	217	1	SOMA_MACMU P33093 macaca mula
6	589	85.5	217	1	SOMA_CALJA Q09803 callilhrlix
7	510	74.0	217	1	SOMV_MACMU Q07370 macaca mula
8	505	73.3	217	1	PLT_HUMAN P01243 homo sapien
9	427	62.0	216	1	SOMA_MESAU P37886 mesocricetu
10	425	61.7	216	1	SOMA_HORSE P01245 equus cabal
11	424	61.5	190	1	SOMA_BALBO P33092 balaeopter
12	424	61.5	217	1	SOMA_NICPY Q09802 nycticebus
13	423	61.4	190	1	SOMA_LOXAF P20392 loxodonta a
14	423	61.4	216	1	P33711 canis famill
15	423	61.4	216	1	SOMA_FELCA P46404 felis silve
16	423	61.4	216	1	SOMA_PIG P01248 sus scrofa
17	421	61.1	216	1	SOMA_MOUSE P06880 mus musculu
18	421	61.1	216	1	SOMA_MOSVI P19795 mustela vis
19	419	60.8	190	1	SOMA_LAMPA P37885 lama guanac
20	419	60.8	216	1	SOMA_RAT P01244 rattus norv
21	418	60.7	217	1	SOMA_GALSE Q09801 galago sene
22	417	60.5	190	1	SOMA_VILVU P10766 vulpes vulp
23	417	60.5	216	1	SOMA_RABIT P46407 oryctolagus
24	403	58.5	215	1	SOMA_MONDO Q09160 monodelphis
25	403	58.5	215	1	SOMA_TRIDU O62754 trichosurus
26	403	58.5	217	1	SOMA_BOVIN P01246 bos taurus
27	403	58.5	217	1	SOMA_CEREL P56437 cervus elap
28	396	57.5	217	1	SOMA_BUBBU O18938 bubalus bub
29	394	57.2	217	1	SOMA_SHEEP P01247 ovis aries
30	390	56.6	190	1	SOMA_CRONO P55755 crocodylus
31	386	56.0	216	1	SOMA_MELGA P22077 meleagris g
32	383	55.6	216	1	SOMA_CHICK P08998 gallus gall
33	378	54.9	191	1	SOMA_CHEMY P34005 chelonla my

34	378	54.9	217	1	SOMA_STRCA	O9PW3 struthio ca
35	368.5	53.5	216	1	SOMA_ANAPL	P1228 anas platyr
36	356.5	51.7	214	1	SOMA_XENIA	P12855 xenopus lae
37	338	49.1	211	1	SOMA_LEPOS	P79885 lepisosteus
38	327	47.5	190	1	SOM1_ACIGU	P26773 acipenser g
39	327	47.5	190	1	SOM2_ACIGU	P26773 acipenser g
40	313	45.4	215	1	SOMA_RANCA	P10813 rana catesb
41	307.5	44.6	213	1	SOMA_BUFMA	O73849 bufo marinu
42	297.5	43.2	208	1	SOMB_XENLA	P12856 xenopus lae
43	276.5	40.1	206	1	SOMA_PROAN	O73848 protopteris
44	267.5	38.8	183	1	SOMA_PRIGL	P34006 prionace gl
45	238	34.5	209	1	SOMA_ANGJA	P08899 anguilla ja

#### ALIGNMENTS

RESULT	ID	SOMV_HUMAN	STANDARD	PRT	217 AA.
AC	P01242	21-JUL-1986 (Rel. 01, Created)			
DT	01-AUG-1991 (Rel. 19, Last sequence update)				
DT	16-OCT-2001 (Rel. 40, Last annotation update)				
DE	Growth hormone variant I precursor (GH-V) (Placenta-specific growth hormone).				
DE	hormone).				
CN	GH2.				
OS	Homo sapiens (Human).				
OC	Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;				
OC	Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.				
OX	NCBI_TaxId=9606;				
RN	[1]				
RP	SEQUENCE FROM N.A.				
RX	MEDLINE=89307277; PubMed=2744760;				
RA	Chen E.Y., Liao Y.C., Smith D.H., Barrera-Salana H.A.,				
RA	Gelinas R.E., Seeburg P.H.;				
RT	"The human growth hormone locus: nucleotide sequence, biology, and evolution.";				
RT	Genomics 4:479-497(1989).				
RN	[2]				
RP	SEQUENCE FROM N.A.				
RX	MEDLINE=88243769; PubMed=3379057;				
RA	Cooke N.E., Ray J., Emery J.G., Liehaber S.A.;				
RT	"Two distinct species of human growth hormone-variant mRNA in the human placenta predict the expression of novel growth hormone proteins.";				
RT	J. Biol. Chem. 263:9001-9006(1988).				
RL	[3]				
RP	SEQUENCE FROM N.A.				
RX	MEDLINE=83182010; PubMed=7169009;				
RA	Seeburg P.H.;				
RT	"The human growth hormone gene family: nucleotide sequences show recent divergence and predict a new polypeptide hormone.";				
RT	DNA 1:239-249(1982).				
RL	[4]				
RP	SEQUENCE FROM N.A.				
RX	MEDLINE=89024984; PubMed=2460050;				
RA	Ignot A., Scippo M.L., Franke G.;				
RT	"Cloning and nucleotide sequence of placental hGH-V cDNA.";				
RT	Arch. Int. Physiol. Biochim. 96:63-67(1988).				
CC	-1- SUBCELLULAR LOCATION: Secreted.				
CC	-1- ALTERNATIVE PRODUCTS: TWO GROWTH HORMONE VARIANTS ARE PRODUCED BY ALTERNATIVE SPLICING OF THE SAME GENE.				
CC	-1- TISSUE SPECIFICITY: THIS PROTEIN SEEMS TO BE EXPRESSED IN THE PLACENTA.				
CC	-1- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.				
CC	-----				
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RL Nucleic Acids Res. 7:305-320(1979).  
 RN [13]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=79203293; PubMed=377496;  
 RA Martell J.A., Hallewell R.A., Baxter J.D., Goodman H.M.;  
 RT "Human growth hormone: complementary DNA cloning and expression in  
 bacteria.";  
 RL Science 205:602-607(1979).  
 RN [14]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=89307277; PubMed=2744760;  
 RA Chen E.Y., Liao Y.C., Smith D.H., Barrera-Saldana H.A.,  
 RA Gellinas R.E., Seeburg P.H.;  
 RT "The human growth hormone locus: nucleotide sequence, biology, and  
 evolution.";  
 RL Genomics 4:479-497(1989).  
 RN [15]  
 RP SEQUENCE OF 27-217.  
 RX MEDLINE=69289202; PubMed=5810834;  
 RA Li C.H., Dixon J.S., Liu W.-K.;  
 RT "Human pituitary growth hormone. XIX. The primary structure of the  
 hormone.";  
 RL Arch. Biochem. Biophys. 133:70-91(1969).  
 RN [6]  
 RP SEQUENCE OF 27-217, AND REVISIONS.  
 RX MEDLINE=72143935; PubMed=5144027;  
 RA Li C.H., Dixon J.S.;  
 RT "Human pituitary growth hormone. 32. The primary structure of the  
 hormone: revision.";  
 RL Arch. Biochem. Biophys. 146:233-236(1971).  
 RN [7]  
 RP SEQUENCE OF 27-51 AND 104-120.  
 RX MEDLINE=71139765; PubMed=5279046;  
 RA Niall H.D.;  
 RT "Revised primary structure for human growth hormone.";  
 RL Nature New Biol. 230:90-91(1971).  
 RN [8]  
 RP REVISION.  
 RX MEDLINE=73092028; PubMed=4675454;  
 RA Bewley T.A., Dixon J.S., Li C.H.;  
 RT "Sequence comparison of human pituitary growth hormone, human  
 chorionic somatomammotropin, and ovine pituitary growth and  
 lactogenic hormones.";  
 RL Int. J. Pept. Protein Res. 4:281-287(1972).  
 RN [9]  
 RP REVISION.  
 RA Niall H.D.;  
 RT "The chemistry of the human lactogenic hormones.";  
 RL (In) Griffiths K. (eds.);  
 RL Prolactin and carcinogenesis, Proc. fourth tenovus workshop prolactin,  
 RL pp.13-20, Alpha Omega Alpha Press, Cardiff (1972).  
 RN [10]  
 RP REVISIONS TO 119-120 AND 157-159.  
 RX MEDLINE=7113968; PubMed=5279528;  
 RA Niall H.D., Hogan M.L., Sauer R., Rosenblum I.Y., Greenwood F.C.;  
 RT "Sequences of pituitary and placental lactogenic and growth hormones:  
 evolution from a primordial peptide by gene reduplication.";  
 RL Proc. Natl. Acad. Sci. U.S.A. 68:866-869(1971).  
 RN [11]  
 RP SEQUENCE OF 27-57 AND 73-79.  
 RX MEDLINE=81117361; PubMed=7462247;  
 RA Chapman G.E., Rogers K.M., Brittain T., Bradshaw R.A., Bates O.J.,  
 RA Turner C., Cary P.D., Crane-Robinson C.;  
 RT "The 20,000 molecular weight variant of human growth hormone.  
 Preparation and some physical and chemical properties.";  
 RL J. Biol. Chem. 256:2395-2401(1981).  
 RN [12]  
 RP SEQUENCE OF 46-57 AND 73-80.  
 RX MEDLINE=80130196; PubMed=7356479;  
 RA Lewis U.J., Bonewald L.F., Lewis L.J.;  
 RT "The 20,000-dalton variant of human growth hormone: location of the  
 amino acid deletions.";  
 RL Biochem. Biophys. Res. Commun. 92:511-516(1980).

RN [13]  
 RP 3D-STRUCTURE MODELING.  
 RX MEDLINE=88190073; PubMed=3447173;  
 RA Cohen F.E., Kuntz I.D.;  
 RT "Prediction of the three-dimensional structure of human growth  
 hormone.";  
 RL Proteins 2:162-166(1987).  
 RN [14]  
 RP X-RAY CRYSTALLOGRAPHY (2.8 ANGSTROMS).  
 RX MEDLINE=92196577; PubMed=1549776;  
 RA de Vos A.M., Ultsch M., Kossiakoff A.A.;  
 RT "Human growth hormone and extracellular domain of its receptor:  
 crystal structure of the complex.";  
 RL Science 255:306-312(1992).  
 RN [15]  
 RP X-RAY CRYSTALLOGRAPHY (2.9 ANGSTROMS).  
 RX MEDLINE=95075462; PubMed=7984244;  
 RA Somers W., Ultsch M., de Vos A.M., Kossiakoff A.A.;  
 RT "The X-ray structure of a growth hormone-prolactin receptor complex.";  
 RL Nature 372:478-481(1994).  
 RN [16]  
 RP X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS).  
 RA Chantalat L., Chirgadze N.Y., Jones N., Korber F., Navaza J.,  
 RA Pavlovsk A.G., Wlodawer A.;  
 RT "The crystal-structure of wild-type growth-hormone at 2.5-A  
 resolution.";  
 RL Protein Pept. Lett. 2:333-340(1995).  
 RN [17]  
 RP X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS).  
 RX MEDLINE=97113023; PubMed=8943276;  
 RA Sundstroem M., Lundqvist T., Roedin J., Giebel L.B., Milligan D.,  
 RA Norstedt G.;  
 RT "Crystal structure of an antagonist mutant of human growth hormone,  
 g120R, in complex with its receptor at 2.9-A resolution.";  
 RL J. Biol. Chem. 271:32197-32203(1996).  
 CC -I- FUNCTION: GROWTH HORMONE PLAYS AN IMPORTANT ROLE IN GROWTH  
 CONTROL.  
 CC -I- SUBCELLULAR LOCATION: Secreted.  
 CC -I- ALTERNATIVE PRODUCTS: A 20 kDa SHORT VARIANT WHICH LACKS 58-72 IS  
 CC PRODUCED AS THE RESULT OF SPLICING AT THE ALTERNATE JUNCTION  
 CC OF THE SECOND INTRON.  
 CC -I- DISEASE: DEFECTS IN GH1 ARE A CAUSE OF PITUITARY DWAFFISM I AND  
 CC IV.  
 CC -I- PHARMACEUTICAL: Available under the names Nutropin or Protropin  
 CC (Genentech), Norditropin (Novo Nordisk), Genotropin (Pharmacia  
 CC Upjohn), Humatrope (Eli Lilly) and Saizen or Serostim (Serono).  
 CC Used for the treatment of growth hormone deficiency and for  
 CC Turner's syndrome.  
 CC -I- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.  
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 CC  
 CC EMBL, V00519; CAA23778.1; -;  
 CC EMBL, J03071; AAA52549.1; -;  
 CC EMBL, M13438; AAA98681.1; -;  
 CC EMBL, A12770; CAA01057.1; -;  
 CC EMBL, A00469; CAA00065.1; -;  
 CC PIR, A01510; STHD.  
 CC PIR, A32435; A32435.  
 CC PDB, 3HHR; 30-APR-94.  
 CC PDB, 1HW; 31-JAN-94.  
 CC PDB, 1HGU; 07-DEC-95.  
 CC PDB, 1HWG; 19-NOV-97.  
 CC PDB, 1HHM; 19-NOV-97.  
 CC PDB, 1AXI; 28-JAN-98.  
 CC PDB, 1A22; 29-APR-98.  
 CC PDB, 1BP3; 23-SEP-98.

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DR MIM; 139250; -
DR MIM; 262400; -
DR MIM; 262650; -
DR InterPro: IPR001400: SOMATOTROPIN.
DR Pfam: PF00103: hormone_1.
DR PRINTS: PR00836: SOMATOTROPIN.
DR PROSITE: PS00286; SOMATOTROPIN_1; 1.
DR PROSITE: PS00338; SOMATOTROPIN_2; 1.
KW Pituitary; Hormone; Alternative splicing; Signal; 3d-structure;
KW Dwarfism; Pharmaceutical; Polymorphism.
FT SIGNAL 1 26
FT CHAIN 27 217 SOMATOTROPIN.
FT DISULFID 79 191
FT DISULFID 208 215
FT VARSPPLIC 58 72 MISSING (IN 20 KDA ISOFORM).
FT VARIANT 3 3 T -> A (IN DBSNP:2001345).
FT VARIANT 105 105 S -> C (IN DBSNP:6174).
FT VARIANT 136 136 V -> I (IN DBSNP:5388).
FT VARIANT 136 136 /FTID-VAR_011919.
FT HELIX 32 61
FT HELIX 64 72
FT TURN 76 77
FT TURN 80 83
FT HELIX 90 94
FT TURN 95 95
FT HELIX 98 110
FT TURN 111 114
FT HELIX 115 125

Query Match 89.7%; Score 618; DB 1; Length 217;
Best Local Similarity 92.5%; Pred. No. 2e-54;
Matches 124; Conservative 3; Mismatches 7; Indels 0; Gaps 0;

QY 2 FTPTPLSRLEFDNMLRARLYQLADYDYOEFEEAYILKEOKYSFLQNPQTSICFSES IPT 61
DB 27 FTPTPLSRLEFDNMLRARLYQLADYDYOEFEEAYILKEOKYSFLQNPQTSICFSES IPT 86
QY 62 PSNRVKTQOKSNLELLRLSLILQSWLEPVQLRSVFANSLVGASDSNVYRHLDKEEG 121
DB 87 PSNRKEETOOKSNLELLRLSLILQSWLEPVQLRSVFANSLVGASDSNVYDLKDLKEEG 146
QY 122 IOTLMWRLEDSGSPR 135
DB 147 IOTLMWRLEDSGSPR 160

RESULT 4
SOMA_SATIBB STANDARD; PRT; 217 AA.
AC P58343;
DT 01-MAR-2002 (Rel. 41, Created)
DT 01-MAR-2002 (Rel. 41, Last sequence update)
DE 01-MAR-2002 (Rel. 41, Last annotation update)
DE Somatotropin precursor (Growth hormone).
GN GH1.
OS Saimiri boliviensis boliviensis (Bolivian squirrel monkey).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Platyrrhini; Cebidae; Cebinae; Saimiri.
OX NCBI_TaxID=9432;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=21265430; PubMed=11371582;
RA Liu J.C., Makova K.D., Adkins R.M., Gibson S., Li W.H.;
RT "Episodic evolution of growth hormone in primates and emergence of the
RT species specificity of human growth hormone receptor.";
RL Mol. Biol. Evol. 18:945-953(2001).
CC -!- FUNCTION: GROWTH HORMONE PLAYS AN IMPORTANT ROLE IN GROWTH
CC CONTROL.
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.

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CC -----
DR EMBL: AF339060; AAK62287.1; -
DR PROSITE: PS00286; SOMATOTROPIN_1; 1.
DR PROSITE: PS00338; SOMATOTROPIN_2; 1.
KW Hormone; Pituitary; Signal.
FT SIGNAL 1 26
FT CHAIN 27 217 BY SIMILARITY.
FT DISULFID 79 191 SOMATOTROPIN.
FT DISULFID 208 215 BY SIMILARITY.
SQ SEQUENCE 217 AA; 24864 MW; 9515289992C52977 CRC64;

Query Match 86.1%; Score 593; DB 1; Length 217;
Best Local Similarity 86.6%; Pred. No. 6.1e-52;
Matches 116; Conservative 10; Mismatches 8; Indels 0; Gaps 0;

QY 2 FTPTPLSRLEFDNMLRARLYQLADYDYOEFEEAYILKEOKYSFLQNPQTSICFSES IPT 61
DB 27 FTPTPLSRLEFDNMLRARLYQLADYDYOEFEEAYILKEOKYSFLQNPQTSICFSES IPT 86
QY 62 PSNRVKTQOKSNLELLRLSLILQSWLEPVQLRSVFANSLVGASDSNVYRHLDKEEG 121
DB 87 PSNRKEETOOKSNLELLRLSLILQSWLEPVQLRSVFANSLVGASDSNVYDLKDLKEEG 146
QY 122 IOTLMWRLEDSGSPR 135
DB 147 IOTLMWRLEDSGSPR 160

RESULT 5
SOMA_MACMU STANDARD; PRT; 217 AA.
AC P33093;
DT 01-OCT-1993 (Rel. 27, Created)
DT 01-OCT-1994 (Rel. 30, Last sequence update)
DT 01-FEB-1996 (Rel. 33, Last annotation update)
DE Somatotropin precursor (Growth hormone).
GN GH1.
OS Macaca mulatta (Rhesus macaque).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Cercopithecoidea;
OC Cercopithecoidea; Macaca.
OX NCBI_TaxID=9544;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=94008724; PubMed=8404617;
RA Golos T.G., Durning M., Fisher J.M., Fowler P.D.;
RT "Cloning of four growth hormone/chorionic somatotropin-related
RT complementary deoxyribonucleic acids differentially expressed during
RT pregnancy in the rhesus monkey placenta.";
RL Endocrinology 133:1744-1752(1993).
RN [2]
RP SEQUENCE OF 27-217.
RX MEDLINE=86129460; PubMed=3080959;
RA Li C.H., Chung D., Lahm H.W., Stein S.;
RT "The primary structure of monkey pituitary growth hormone.";
RL Arch. Biochem. Biophys. 245:287-291(1986).
CC -!- FUNCTION: GROWTH HORMONE PLAYS AN IMPORTANT ROLE IN GROWTH
CC CONTROL.
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.
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CC -----
DR EMBL: L16556; AAA18842.1; -.
DR PIR: A05094; A05094.
DR HSSP: P01241; 1HWG.
DR InterPro: IPR001400; SOMATOTROPIN.
DR Pfam: PF00103; hormone; 1.
DR PRINTS: PR00836; SOMATOTROPIN.
DR PROSITE: PS00266; SOMATOTROPIN_1; 1.
DR PROSITE: PS00338; SOMATOTROPIN_2; 1.
KM Hormone; pituitary; Signal.
FT SIGNAL 1
FT CHAIN 27 217 SOMATOTROPIN.
FT DISULFID 79 191 BY SIMILARITY.
FT DISULFID 208 215 BY SIMILARITY.
FT CONFLICT 100 100 E -> O (IN REF. 2).
FT CONFLICT 179 179 N -> D (IN REF. 2).
SQ SEQUENCE 217 AA; 24913 MW; 2C5180341ECC46D0 CRC64;

Query Match 85.9%; Score 592; DB 1; Length 217;
Best Local Similarity 89.6%; Pred. No. 7.6e-52;
Matches 120; Conservative 4; Mismatches 10; Indels 0; Gaps 0;

QY 2 FPTPLSLRFDNMLRARLYQLAYDTYQEFEEAYILKEQKYSFLONPOTSLCFSES IPT 61
   ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 27 FPTPLSLRFDNMLRARLYQLAYDTYQEFEEAYILKEQKYSFLONPOTSLCFSES IPT 86

QY 62 PSNRVKTQOKSNLELRLISLLIQSWLEPVQLRSVFANSLVYGASDSNYYRLKLEEG 121
   ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 87 PSNRVKTQOKSNLELRLISLLIQSWLEPVQLRSVFANSLVYGASDSNYYRLKLEEG 146

QY 122 IOTLMGRLEDSGSPR 135
   ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 147 IOTLMGRLEDSGSSR 160

RESULT 6
SOMA_CALJA STANDARD; PRT; 217 AA.
AC O9GMB3;
DT 01-MAR-2002 (Rel. 41, Created)
DT 01-MAR-2002 (Rel. 41, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Somatotropin precursor (Growth hormone).
GN GH1.
OS Callithrix jacchus (Common marmoset).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Platyrrhini; Callitrichidae; Callithrix.
OX NCBI_TaxID=9483;
RN [1]
RP SEQUENCE FROM N.A.
RA Wallis O.C., Wallis M.;
RT "Cloning and characterisation of a putative growth hormone encoding
RT gene from the marmoset (Callithrix jacchus)".
RU Submitted (AUG-2000) to the EMBL/GenBank/DBJ databases.
CC -1- FUNCTION: GROWTH HORMONE PLAYS AN IMPORTANT ROLE IN GROWTH
CC CONTROL.
CC -1- SUBCELLULAR LOCATION: Secreted.
CC -1- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.
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CC -----
DR EMBL: AJ297563; CAC03481.1; -.
DR InterPro: IPR001400; SOMATOTROPIN.

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DR Pfam: PF00103; hormone; 1.
DR PRINTS: PR00836; SOMATOTROPIN.
DR PROSITE: PS00266; SOMATOTROPIN_1; 1.
DR PROSITE: PS00338; SOMATOTROPIN_2; 1.
KM Hormone; pituitary; Signal.
FT SIGNAL 1
FT CHAIN 27 217 SOMATOTROPIN.
FT DISULFID 79 191 BY SIMILARITY.
FT DISULFID 208 215 BY SIMILARITY.
SQ SEQUENCE 217 AA; 24959 MW; E102151A12CE6192 CRC64;

Query Match 85.5%; Score 589; DB 1; Length 217;
Best Local Similarity 85.8%; Pred. No. 1.5e-51;
Matches 115; Conservative 10; Mismatches 9; Indels 0; Gaps 0;

QY 2 FPTPLSLRFDNMLRARLYQLAYDTYQEFEEAYILKEQKYSFLONPOTSLCFSES IPT 61
   ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 27 FPTPLSLRFDNMLRARLYQLAYDTYQEFEEAYILKEQKYSFLONPOTSLCFSES IPT 86

QY 62 PSNRVKTQOKSNLELRLISLLIQSWLEPVQLRSVFANSLVYGASDSNYYRLKLEEG 121
   ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 87 PSNRVKTQOKSNLELRLISLLIQSWLEPVQLRSVFANSLVYGASDSNYYRLKLEEG 146

QY 122 IOTLMGRLEDSGSPR 135
   ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 147 IOTLMGRLEDSGSPR 160

RESULT 7
SOMV_MACMU STANDARD; PRT; 217 AA.
AC Q07370; Q28494;
DT 01-NOV-1997 (Rel. 35, Created)
DT 01-NOV-1997 (Rel. 35, Last sequence update)
DT 01-NOV-1997 (Rel. 35, Last annotation update)
DE Growth hormone variant I precursor (GH-V) (Placenta-specific growth
DE hormone).
GN GH2.
OS Macaca mulatta (Rhesus macaque).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Cercopitheciidae;
OC Cercopitheciinae; Macaca.
OX NCBI_TaxID=9544;
RN [1]
RP SEQUENCE FROM N.A.
RA Golos T.G.;
RU Submitted (JAN-1994) to the EMBL/GenBank/DBJ databases.
RN [2]
RP SEQUENCE FROM N.A.
RC TISSUE=Placenta;
RX MEDLINE=94008724; PubMed=8404617;
RA Golos T.G., Durning M., Fisher J.M., Fowler P.D.;
RT "Cloning of four growth hormone/chorionic somatomammotropin-related
RT complementary deoxyribonucleic acids differentially expressed during
RT pregnancy in the rhesus monkey placenta."
RU Endocrinology 133:1744-1752(1993).
CC -1- SUBCELLULAR LOCATION: Secreted (By similarity).
CC -1- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.
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CC -----
DR EMBL: U02293; AAA03391.1; -.
DR EMBL: L16555; AAA20180.1; -.
DR HSSP: P01241; 1HWG.
DR InterPro: IPR001400; SOMATOTROPIN.
DR Pfam: PF00103; hormone; 1.

```



FT	CHAIN	27	216	SOMATOTROPIN.
FT	DISULEPID	78	189	BY SIMILARITY.
FT	DISULEPID	206	214	BY SIMILARITY.
SO	SEQUENCE	216 AA;	24690 MW;	3B69CEE32AB6F1166 CRC64;
	Query Match	62.0%;	Score 427;	DB 1; Length 216;
	Best Local Similarity	64.2%;	Fred. No. 1.9e-35;	
	Matches 86;	Conservative 19;	Mismatches 27;	Gaps 2;
OY	2 PPTPLSRLEPDNMLRLAYDYOEFEAVYLKEKYSFLQNPOTSCESESIFP	61		
	:   :   :   :   :   :   :   :   :   :   :   :   :   :   :   :			
Db	27 PPAPPLSSLPANVLAQHHLADDTKEFPRAVIIPGCRYS-IQAQAFAFCFSETIRA	85		
OY	62 PSNRVKTOOKSNDELLRSLILLIOGMLEPVOLLRSVFANSLVYGSDSNYYRHKLDELGG	121		
	:  :			
Db	86 PTGEENAGQSDDMELLRFSILLIOSLGPVOPLSRIFNSLMFSTSD-RYEKKLKDLGG	144		
OY	122 IQLTLMRLEDGPSR	135		
Db	145 IQALMOELEDGPSR	158		
RESULT	10			
SOMA_HORSE	STANDARD;	PRT;	216 AA.	
ID	SOMA_HORSE			
AC	P01245;			
DR	21-JUL-1986 (Rel. 01, Created)			
DT	01-NOV-1995 (Rel. 32, Last sequence update)			
DT	01-FEB-1996 (Rel. 33, Last annotation update)			
GN	Somatotropin Precursor (Growth hormone).			
OS	Equus caballus (Horse).			
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;			
CC	Mammalia; Eutheria; Perissodactyla; Equidae; Equus.			
OX	NCHI_TaxID=9796;			
RN	[1]			
RP	SEQUENCE FROM N.A.			
RC	TISSUE=Pituitary;			
RX	MEDLINE=94266171; PubMed=8206392;			
RA	Ascasio-Martinez J.A., Barrera-Saldana H.A.;			
RT	"Sequence of a cDNA encoding horse growth hormone.";			
RL	Gene 143:299-300(1994).			
RN	[2]			
RP	SEQUENCE OF 27-216.			
RX	MEDLINE=77005410; PubMed=965151;			
RA	Zakin M.M., Poskus E., Langton A.A., Ferrara F., Santome J.A.,			
RT	"Primary structure of equine growth hormone.";			
RL	Int. J. Pept. Protein Res. 8:435-444(1976).			
RN	[3]			
RP	PRELIMINARY SEQUENCE OF 27-216.			
RX	MEDLINE=74020362; PubMed=477849;			
RA	Zakin M.M., Poskus E., Dellacha J.M., Paladini A.C., Santome J.A.;			
RT	"The amino acid sequence of equine growth hormone.";			
RL	FEBS Lett. 34:353-355(1973).			
RN	[4]			
RP	SEQUENCE OF 68-95 AND 183-216.			
RA	Zakin M.M., Poskus E., Dellacha J.M., Paladini A.C., Santome J.A.;			
RT	"Amino acid sequences around the cysteine residues in equine growth			
RL	hormone.";			
RN	FEBS Lett. 25:77-82(1972).			
RP	[5]			
RX	SEQUENCE OF 202-216.			
RA	MEDLINE=68368390; PubMed=4876100;			
RT	"Amino acid sequences around the cysteine residues in horse growth			
RL	hormone.";			
RN	Biochem. J. 109:19-24(1968).			
CC	-I- FUNCTION: GROWTH HORMONE PLAYS AN IMPORTANT ROLE IN GROWTH			
CC	CONTROL.			
CC	-I- SUBCELLULAR LOCATION: Secreted.			
CC	-I- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.			

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CC  
CC EMBL: 002929; AAA21027.1; -  
DR PIR: A01514; STHO.  
DR HSSP: P01246; 1B8T.  
DR InterPro: IPR001400; SOMATOTROPIN.  
DR Pfam: PF00103; hormone; 1.  
DR PRINTS: PR00836; SOMATOTROPIN.  
DR PROSITE: PS00266; SOMATOTROPIN\_1; 1.  
DR PROSITE: PS00338; SOMATOTROPIN\_2; 1.  
KW Hormone; Pituitary; Signal.  
FT SIGNAL 1 26  
FT CHAIN 27 216 SOMATOTROPIN.  
FT DISULFID 78 189  
FT DISULFID 206 214  
SQ SEQUENCE 216 AA; 24423 MW; 37AB3173834D11AC CRC64;

Query Match 61.7%; Score 425; DB 1; Length 216;  
Best Local Similarity 64.9%; Pred. No. 3e-35;  
Matches 87; Conservative 18; Mismatches 27; Indels 2; Gaps 2;

QY 2 FPTPLSLRFLPDNMLRARRLYQLAYDYQFEFEAYILKEOKYSFLQNPQTSCLFSSEIPT 61  
DB 27 FPMPLSLFLFANAVLRAQHLHLADYKEFEERAYIEGQRY-FLQNAOSTGCFSEVYPT 85  
QY 62 PSNRVKTQOKSNLELRISLLIQSWLEPQLRSVFANSLYVGASDSNYYRHKLDEEG 121  
DB 86 PTKDEAQQRSDVELLRSLILQSWLGPVQLSKRYFTNSLVFGTSD-RVYEKLRLDEEG 144  
QY 122 IQTLMMRLDEGSPR 135  
DB 145 IQALMRELEDEGSPR 158  
RESULT 11  
SOMA\_BALBO STANDARD: PRT; 190 AA.  
AC P33092;  
DT 01-OCT-1993 (Rel. 27, Created)  
DT 01-OCT-1993 (Rel. 27, Last sequence update)  
DT 15-DEC-1998 (Rel. 37, Last annotation update)  
DE Somatotropin (Growth hormone).  
GN GH1.  
OS Balenoptera borealis (Sei whale).  
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Cetartiodactyla; Cetacea; Mysticeti;  
OC Balenopteridae; Balenoptera.  
OX NCBI\_TaxID=9768;  
RN [1]  
RP SEQUENCE.  
RA MEDLINE=83000569; PubMed=7115813;  
RX Yudev N.A., Pankov Y.A., Bulatov A.A., Osipova T.A.;  
RT "Amino acid sequence of sei whale somatotropin.",  
RL Biochimia 47:1059-1069(1982).  
RN [2]  
RP PRELIMINARY PARTIAL SEQUENCE.  
RA Osipova T.A., Bulatov A.A., Pankov Y.A.;  
RT "Structural studies of tryptic peptides from large cyanogen bromide  
RT fragments of sei whale (Balenoptera borealis) somatotropin.",  
RL Bioorg. Khim. 4:1589-1599(1978).  
CC -1- FUNCTION: GROWTH HORMONE PLAYS AN IMPORTANT ROLE IN GROWTH  
CC CONTROL.  
CC -1- SUBCELLULAR LOCATION: Secreted.  
CC -1- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.  
DR PIR: PNO140; PNO140.

DR PIR: JN0387; JN0387.  
DR HSSP: P01246; 1B8T.  
DR InterPro: IPR001400; SOMATOTROPIN.  
DR Pfam: PF00103; hormone; 1.  
DR PRINTS: PR00836; SOMATOTROPIN.  
DR PROSITE: PS00266; SOMATOTROPIN\_1; 1.  
DR PROSITE: PS00338; SOMATOTROPIN\_2; 1.  
KW Hormone; Pituitary.  
FT DISULFID 52 163  
FT DISULFID 180 188 BY SIMILARITY.  
SQ SEQUENCE 190 AA; 21835 MW; 09FBEF6DB1A475D6 CRC64;

Query Match 61.5%; Score 424; DB 1; Length 190;  
Best Local Similarity 64.9%; Pred. No. 3.3e-35;  
Matches 87; Conservative 18; Mismatches 27; Indels 2; Gaps 2;

QY 2 FPTPLSLRFLPDNMLRARRLYQLAYDYQFEFEAYILKEOKYSFLQNPQTSCLFSSEIPT 61  
DB 1 FPMPLSLFLFANAVLRAQHLHLADYKEFEERAYIEGQRY-FLQNAOSTGCFSEVYPT 59  
QY 62 PSNRVKTQOKSNLELRISLLIQSWLEPQLRSVFANSLYVGASDSNYYRHKLDEEG 121  
DB 60 PANKDEAQQRSDVELLRSLILQSWLGPVQLSKRYFTNSLVFGTSD-RVYEKLRLDEEG 118  
QY 122 IQTLMMRLDEGSPR 135  
DB 119 IQALMRELEDEGSPR 132

RESULT 12  
SOMA\_NYCPY STANDARD: PRT; 217 AA.  
AC 09GMB2;  
DT 01-MAR-2002 (Rel. 41, Created)  
DT 01-MAR-2002 (Rel. 41, Last sequence update)  
DT 01-MAR-2002 (Rel. 41, Last annotation update)  
DE Somatotropin precursor (Growth hormone).  
GN GH1.  
OS Nycticebus pygmaeus (Pygmy slow loris).  
OC Eukaryota; Metazoa; Chordata; Cranialia; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Primates; Strepsirhini; Loridae; Nycticebus.  
OX NCBI\_TaxID=101278;  
RN [1]  
RP SEQUENCE FROM N.A.  
RC TISSUE=Liver;  
RA Wallis O.C., Zhang Y.P., Wallis M.;  
RT "Cloning and characterisation of the gene encoding slow loris growth  
RT hormone.",  
RL Submitted (AUG-2000) to the EMBL/GenBank/DBJ databases.  
CC -1- FUNCTION: GROWTH HORMONE PLAYS AN IMPORTANT ROLE IN GROWTH  
CC CONTROL.  
CC -1- SUBCELLULAR LOCATION: Secreted.  
CC -1- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.  
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CC or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).  
CC  
CC EMBL: AJ297562; CAC03504.1; -  
DR InterPro: IPR001400; SOMATOTROPIN.  
DR Pfam: PF00103; hormone; 1.  
DR PRINTS: PR00836; SOMATOTROPIN.  
DR PROSITE: PS00266; SOMATOTROPIN\_1; 1.  
DR PROSITE: PS00338; SOMATOTROPIN\_2; 1.  
KW Hormone; Pituitary; Signal.  
FT SIGNAL 1 27  
FT CHAIN 28 217 BY SIMILARITY.  
FT DISULFID 79 190 SOMATOTROPIN.  
BY SIMILARITY.



FT DISULFID 207 215 BY SIMILARITY.  
SQ SEQUENCE 217 AA; 24395 MM; 7FE90D77E59085F6 CRC64;

Query Match 61.5%; Score 424; DB 1; Length 217;  
Best Local Similarity 65.7%; Pred. No. 3.9e-35;  
Matches 88; Conservative 16; Mismatches 28; Indels 2; Gaps 2;

QY 2 FPTPLSRLEFDNMLRARRLYQLAYDTYQEFEEAYILKEQKYSFLQNPQTSICFSES IPT 61  
DB 28 FPMPLSSLEFANVLAQHQLHQAADTYKEFERAYIPEGQGRS-IQNAQAACFSETTIA 86  
QY 62 PSNRVATQOKSNELLRLISILLIQSWLEVPQLRSFANSLSYGASDSVYRHLKDLBEG 121  
DB 87 PTCKDAQOQSDVELLRFSLILLIQSWLGPVQLLSRVFTNSLVGTSD-RVYEKLKDLBEG 145  
QY 122 IOTLWMLREDEGSPR 135  
DB 146 IQALMRELEDEGSPR 159

RESULT 13  
SOMA\_LOXAF  
ID SOMA\_LOXAF STANDARD; PRT; 190 AA.  
AC P20392;  
DT 01-FEB-1991 (Rel. 17, Created)  
DT 01-FEB-1991 (Rel. 17, Last sequence update)  
DT 15-DEC-1998 (Rel. 37, Last annotation update)  
DE Somatotropin (Growth hormone).  
GN GH1.  
OS Loxodonta africana (African elephant).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Proboscidea; Elephantidae; Loxodonta.  
OX NCBI\_TaxID=9785;  
RN [1]  
RP SEQUENCE.  
RA Hulmes J.D., Miedel M.C., Li C.H., Pan Y.C.E.;  
RT "Primary structure of elephant growth hormone."  
RL Int. J. Pept. Protein Res. 33:368-372(1989)  
CC -1- FUNCTION: GROWTH HORMONE PLAYS AN IMPORTANT ROLE IN GROWTH CONTROL.  
CC -1- SUBCELLULAR LOCATION: Secreted.  
CC -1- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.  
DR PIR: J02219; J02219.  
DR HSSP: P01246; 1B5T.  
DR InterPro: IPR001400; SOMATOTROPIN.  
DR Pfam: PF00103; hormone; 1.  
DR PRINTS: PR00836; SOMATOTROPIN.  
DR PROSITE: PS00266; SOMATOTROPIN\_1; 1.  
DR PROSITE: PS00338; SOMATOTROPIN\_2; 1.  
KW Hormone; pituitary.  
FT DISULFID 52 163 BY SIMILARITY.  
FT DISULFID 180 188 BY SIMILARITY.  
SQ SEQUENCE 190 AA; 21761 MM; 05B860813DB741F2 CRC64;

Query Match 61.4%; Score 423; DB 1; Length 190;  
Best Local Similarity 64.9%; Pred. No. 4.1e-35;  
Matches 87; Conservative 17; Mismatches 28; Indels 2; Gaps 2;

QY 2 FPTPLSRLEFDNMLRARRLYQLAYDTYQEFEEAYILKEQKYSFLQNPQTSICFSES IPT 61  
DB 1 FPMPLSSLEFANVLAQHQLHQAADTYKEFERAYIPEGQGRS-IQNAQAACFSETTIA 59  
QY 62 PSNRVATQOKSNELLRLISILLIQSWLEVPQLRSFANSLSYGASDSVYRHLKDLBEG 121  
DB 60 PTCKDAQOQSDVELLRFSLILLIQSWLGPVQLLSRVFTNSLVGTSD-RVYEKLKDLBEG 118  
QY 122 IOTLWMLREDEGSPR 135  
DB 119 IQALMRELEDEGSPR 132

RESULT 14  
SOMA\_CANFA  
ID SOMA\_CANFA STANDARD; PRT; 216 AA.  
AC P33711; O9TOR6;  
DT 01-FEB-1994 (Rel. 28, Created)  
DT 16-OCT-2001 (Rel. 40, Last sequence update)  
DT 16-OCT-2001 (Rel. 40, Last annotation update)  
DE Somatotropin precursor (Growth hormone).  
GN GH1 OR GH.  
OS Canis familiaris (Dog).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.  
OX NCBI\_TaxID=9615;  
RN [1]  
RP SEQUENCE FROM N.A.  
RA MEDLINE=94266166; PubMed=8206387;  
RX Ascacio-Martinez J.A., Barrera-Saldana H.A.;  
RT "A dog growth hormone cDNA codes for a mature protein identical to pig growth hormone";  
RL Gene 143:277-280(1994).  
RN [2]  
RP SEQUENCE FROM N.A.  
RA van Leeuwen I.S., Teske E., van Garderen E., Rutteman G.R., Mol J.A.;  
RT "Extrapituitary growth hormone expression in the dog is initiated at the normal pituitary transcription start site in the mammary gland and at multiple upstream sites in lymphoid cells";  
RL Submitted (MAR-1997) to the EMBL/GenBank/DBJ databases.  
RN [3]  
RP SEQUENCE FROM N.A.  
RC TISSUE=Mammary gland;  
RX MEDLINE=99337113; PubMed=10411306;  
RA Lantinga-van Leeuwen I.S., Oudshoorn M., Mol J.A.;  
RT "Canine mammary growth hormone gene transcription initiates at the pituitary-specific start site in the absence of Pit-1";  
RL Mol. Cell. Endocrinol. 150:121-128(1999).  
CC -1- FUNCTION: GROWTH HORMONE PLAYS AN IMPORTANT ROLE IN GROWTH CONTROL.  
CC -1- SUBCELLULAR LOCATION: Secreted.  
CC -1- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.

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CC EMBL: Z23067; CAA80601.1; -;  
DR EMBL: U92533; AAF21502.1; -;  
DR EMBL: AF069071; AAD43366.1; -;  
DR PIR: S35790; S35790.  
DR HSSP: P01246; 1B5T.  
DR InterPro: IPR001400; SOMATOTROPIN.  
DR Pfam: PF00103; hormone; 1.  
DR PRINTS: PR00836; SOMATOTROPIN.  
DR PROSITE: PS00266; SOMATOTROPIN\_1; 1.  
DR PROSITE: PS00338; SOMATOTROPIN\_2; 1.  
KW Hormone; pituitary; signal.  
FT SIGNAL 1 26 BY SIMILARITY.  
FT CHAIN 27 216 SOMATOTROPIN.  
FT DISULFID 78 189 BY SIMILARITY.  
FT DISULFID 206 214 BY SIMILARITY.  
FT CONFLICT 4 4 S->G (IN REF. 1).  
FT CONFLICT 7 7 N->T (IN REF. 1).  
SQ SEQUENCE 216 AA; 24468 MM; ABAD1DD59F1DAED CRC64;

Query Match 61.4%; Score 423; DB 1; Length 216;  
Best Local Similarity 64.9%; Pred. No. 4.8e-35;  
Matches 87; Conservative 17; Mismatches 28; Indels 2; Gaps 2;

QY 2 FPTPLSRLEFDNMLRARRLYQLAYDTYQEFEEAYILKEQKYSFLQNPQTSICFSES IPT 61

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DB 27 FPMPLSSLFANAVLRAQHLHQLADTYKEFERAYIPEGORYS-IONQAACFCSETIPA 85
QY 62 PSNRVKTQOKSNLELLRISLLIOSWLEFPVOLLRSVFANSVLYGASDSNVYRHLKDLLEG 121
DB 86 PTGKDEAQORSDVELLRFSLLLIOSWLGVPVQLSRVFTNSLVFGTSD-RVYEKLDLEEG 144
QY 122 IOTLMWRLEDGSPR 135
DB 145 IQALMRELEDGSPR 158

RESULT 15
SOMA_FELICA STANDARD; PRT; 216 AA.
AC F46404;
DT 01-NOV-1995 (Rel. 32, Created)
DT 01-NOV-1995 (Rel. 32, Last sequence update)
DT 15-JUL-1999 (Rel. 38, Last annotation update)
DE Somatotropin precursor (Growth hormone).
GN GH1.
OS Felis silvestris catus (Cat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Carnivora; Fissipedia; Felidae; Felis.
OX NCBI_TaxId=9685;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=pituitary;
RX MEDLINE=96194806; PubMed=8654953;
RA Warren W.C., Bentle K.A., Bogosian G.;
RT "Cloning of the cDNAs coding for cat growth hormone and prolactin.";
RL Gene 168:247-249(1996).
RN [2]
RP SEQUENCE FROM N.A.
RC TISSUE=pituitary;
RX MEDLINE=95369713; PubMed=7642118;
RA Castro-Peralta F., Barrera-Saldana H.A.;
RT "Cloning and sequencing of cDNA encoding the cat growth hormone.";
RL Gene 160:311-312(1995).
CC -1- FUNCTION: GROWTH HORMONE PLAYS AN IMPORTANT ROLE IN GROWTH
CC CONTROL.
CC -1- SUBCELLULAR LOCATION: Secreted.
CC -1- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.
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CC -----
CC EMBL: U25973; AAA67294.1; -.
CC DR EMBL: U13390; AAA96142.1; -.
CC DR HSSP: P01246; 1BSR.
CC DR InterPro: IPR001400; SOMATOTROPIN.
CC DR Pfam: PF00836; SOMATOTROPIN.
CC DR PROSITE: PS00266; SOMATOTROPIN_1; 1.
CC DR PROSITE: PS00338; SOMATOTROPIN_2; 1.
CC KW Hormone; pituitary; Signal.
FT SIGNAL 1
FT CHAIN 27
FT DISULFID 78
FT DISULFID 206
FT CONFLICT 7
FT CONFLICT 26
FT CONFLICT 159
FT CONFLICT 181
SQ SEQUENCE 216 AA; 24454 MW; 05820239A7D292C6 CRC64;
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Query Match

61.4%; Score 423; DB 1; Length 216;

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Best Local Similarity 64.9%; Pred. No. 4,8e-35;
Matches 87; Conservative 17; Mismatches 28; Indels 2; Gaps 2;
QY 2 FPTIPLSRLEFDMAMLRARRLYLQALDYTYQFEERAYIIEKQYSLFQNPQTSICFSSSIFP 61
DB 27 FPMPLSSLFANAVLRAQHLHQLADTYKEFERAYIPEGORYS-IONQAACFCSETIPA 85
QY 62 PSNRVKTQOKSNLELLRISLLIOSWLEFPVOLLRSVFANSVLYGASDSNVYRHLKDLLEG 121
DB 86 PTGKDEAQORSDVELLRFSLLLIOSWLGVPVQLSRVFTNSLVFGTSD-RVYEKLDLEEG 144
QY 122 IOTLMWRLEDGSPR 135
DB 145 IQALMRELEDGSPR 158
```

Search completed: September 25, 2002, 09:59:52  
Job time: 166 sec





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OM protein - protein search, using sw model

Run on: September 25, 2002, 09:59:30 ; Search time 42.97 Seconds  
(without alignments)  
543.503 Million cell updates/sec

Title: US-09-819-094-30  
Perfect score: 689  
Sequence: 1 MFPTPLSRFLFDNMLRARR.....KDLKEGIQTLMLLEDGSPR 135

Scoring table:  
BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 562222 seqs, 172994929 residues

Total number of hits satisfying chosen parameters: 562222

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database :

1: SP archaea:\*  
2: SP bacteria:\*  
3: SP fungi:\*  
4: SP human:\*  
5: SP invertebrate:\*  
6: SP mammal:\*  
7: SP mhc:\*  
8: SP organelle:\*  
9: SP phage:\*  
10: SP plant:\*  
11: SP rodent:\*  
12: SP virus:\*  
13: SP vertebrate:\*  
14: SP unclassified:\*  
15: SP virus:\*  
16: SP bacteriophage:\*  
17: SP archaea:\*

Pred. No. is the number of results predicted by chance to have a  
score greater than or equal to the score of the result being printed,  
and is derived by analysis of the total score distribution.

#### SUMMARIES

Result No.	Score	Query Match	Length	DB	ID	Description
1	631.5	91.7	245	4	014644	014644 homo sapien
2	612	88.8	217	4	016631	016631 homo sapien
3	591.5	85.8	202	4	014643	014643 homo sapien
4	523	75.9	217	6	007369	007369 macaca mulla
5	519	75.3	212	6	007368	007368 macaca mulla
6	519	75.3	217	6	007367	007367 macaca mulla
7	505	73.3	217	4	014407	014407 homo sapien
8	443	64.3	171	4	090NLS	090NLS homo sapien
9	424	61.5	167	4	P78451	P78451 homo sapien
10	417	60.5	179	4	Q9HBZ1	Q9HBZ1 homo sapien
11	415	60.2	216	11	Q9R2C3	Q9R2C3 mus musculus
12	414	60.1	216	11	Q9JMW4	Q9JMW4 cavia porce
13	412	59.8	216	11	070615	070615 spalax leuc
14	404	58.6	190	11	Q9JMR50	Q9JMR50 cavia porce
15	404	58.6	192	6	Q9TU21	Q9TU21 capra hircu
16	403	58.5	192	6	Q9TQW9	Q9TQW9 bos indicus

17	402	58.3	204	6	Q95205	Q95205 ovis aries
18	402	58.3	217	6	Q28957	Q28957 sus scrofa
19	397	57.6	217	6	Q9BEC0	Q9BEC0 tragulus ja
20	397	57.6	217	6	Q9BEB9	Q9BEB9 tragulus ja
21	388	56.3	178	6	Q95MJ6	Q95MJ6 tarsius syr
22	387	56.2	143	6	Q95240	Q95240 canis fami
23	379	55.0	178	6	Q95MJ5	Q95MJ5 tarsius ban
24	364	52.8	145	6	Q9BDR4	Q9BDR4 galago cras
25	358.5	52.0	218	13	Q9PU72	Q9PU72 cynops pyr
26	346	50.2	199	4	014406	014406 homo sapien
27	336	48.8	195	13	Q91386	Q91386 amia calva
28	273.5	39.7	110	6	Q9N265	Q9N265 bos taurus
29	200	29.0	187	13	Q98SR8	Q98SR8 megalobrama
30	200	29.0	188	13	Q98RT4	Q98RT4 megalobrama
31	200	29.0	188	13	Q90283	Q90283 carassius a
32	200	29.0	188	13	Q90W27	Q90W27 carassius a
33	200	29.0	210	13	Q90Z01	Q90Z01 mylopharyng
34	199	28.9	210	13	Q91056	Q91056 hypophthalm
35	198.5	28.8	120	6	Q9TSC0	Q9TSC0 ovis aries
36	197.5	28.7	140	13	Q90WE4	Q90WE4 gallus gall
37	195	28.3	188	13	Q90W26	Q90W26 carassius a
38	194	28.2	188	13	Q98SR7	Q98SR7 cyprinus ca
39	181	26.3	210	13	Q90W30	Q90W30 cirrhinus m
40	181	26.3	211	13	Q9W798	Q9W798 catia catia
41	180	26.1	210	13	Q90WV7	Q90WV7 catia catia
42	148	21.5	45	6	Q9TSF9	Q9TSF9 ovis aries
43	144.5	21.0	52	6	Q9TV91	Q9TV91 equus cabal
44	143	20.8	210	13	Q91160	Q91160 oncorhynch
45	141	20.5	187	13	Q91077	Q91077 lateolabrax

#### ALIGNMENTS

RESULT	ID	1	PRELIMINARY:	PRT:	245 AA.
014644	014644	01-JAN-1998 (TREMBLrel. 05, Created)			
AC	01-JAN-1998 (TREMBLrel. 05, Last sequence update)				
DT	01-DEC-2001 (TREMBLrel. 19, Last annotation update)				
DE	PLACENTAL GROWTH HORMONE ISOFORM HGH-V3 PRECURSOR.				
GN	HGH-V.				
OS	Homo sapiens (Human).				
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;				
CC	Mammalia; Euteria; Primates; Carnivora; Hominoidea; Homo.				
OX	NCBI_TaxID=9606;				
RN	[1]				
RP	SEQUENCE FROM N.A.				
RC	TISSUE=FULL-TERM PLACENTA;				
RX	MEDLINE=98373737; PubMed=9709963;				
RA	Boyszewski C.L., Svensson P.A., Jansson T., Clark R.,				
RA	Carlsson L.M.S., Carlsson B.,				
RT	"Cloning of two novel growth hormone transcripts expressed in human				
RT	placenta."				
RL	J. Clin. Endocrinol. Metab. 83:2878-2885(1998).				
DR	EMBL; AF006061; AAB71829.1; -.				
DR	HSSP; P01241; 1A22.				
DR	Interpro; IPR001400; SOMATOTROPIN.				
DR	Pfam; PF00103; hormone; 1.				
KW	PROSITE; PS00266; SOMATOTROPIN_1; 1.				
FT	SIGNAL.				
FT	SIGNAL.				
SO	SEQUENCE	1	26	POTENTIAL.	
		245 AA;	27101 MW;	14CC7F8CD75D91C8 CRC64;	

Query Match	91.7%	Score 631.5;	DB 4;	Length 245;
Best Local Similarity	96.9%;	Pred. NO. 9.8e-57;		
Matches 125;	Conservative 3;	Mismatches 0;	Indels 1;	Gaps 1;
2	FFPTPLSRFLFDNMLRARRLYQALVADYQEFEEFAVYIKKQKYSFLQNPQTSICSESISPT 61			
DB	27	FFPTPLSRFLFDNMLRARRLYQALVADYQEFEEFAVYIKKQKYSFLQNPQTSICSESISPT 86		

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QY 62 PSNRVKTQOKSNLELRISILLIQSWLEPQVLRSVFANSIYVGASDSNVYRLKDLDEG 121
DB 87 PSNRVKTQOKSNLELRISILLIQSWLEPQVLRSVFANSIYVGASDSNVYRLKDLDEG 146
QY 122 IOTLM-WRL 129
DB 147 IOTLMGRLEDSR 155

RESULT 2
Q16631 PRELIMINARY: PRT: 217 AA.
AC Q16631; Q14405;
DT 01-NOV-1996 (TREMblrel. 01, Created)
DT 01-NOV-1996 (TREMblrel. 01, Last sequence update)
DE 01-DEC-2001 (TREMblrel. 19, Last annotation update)
DE GROWTH HORMONE
OS Homo sapiens (human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX NCBI_TaxId=9606;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=82014939; PubMed=6269091;
RA DeNoto F.M., Moore D.D., Goodman H.M.;
RT "Human growth hormone DNA sequence and mRNA structure: possible
RT alternative splicing.";
RL Nucleic Acids Res. 9:3719-3730(1981).
RN [2]
RP SEQUENCE FROM N.A.
RX MEDLINE=84057143; PubMed=6357679;
RA Adelman J.P., Hayflick J.S., Vasser M., Seeburg P.H.;
RT "In vitro deletional mutagenesis for bacterial production of the
RT 20,000-dalton form of human pituitary growth hormone.";
RL DNA 2:183-193(1983).
RX EMBL: Y00520; CAA23779.1; -.
DR HSSP: P01241; 1HGJ.
DR InterPro: IPR001400; SOMATOTROPIN.
DR Pfam: PF00103; hormone; 1.
DR PRINTS: PR00836; SOMATOTROPIN.
DR PROSITE: PS00266; SOMATOTROPIN_1; 1.
DR PROSITE: PS00338; SOMATOTROPIN_2; 1.
SQ SEQUENCE 217 AA; 24803 MW; CCC4D81150D908AC CRC64;

Query Match 88.8%; Score 612; DB 4; Length 217;
Best Local Similarity 91.8%; Pred. No. 8.4e-55;
Matches 123; Conservative 3; Mismatches 8; Indels 0; Gaps 0;

QY 2 PPTPLSRFLPDNMLRARLYQLADYDTYQEFEEAYILKEQKYSFLQNPQTSLCFSSEIPT 61
DB 27 PPTPLSRFLPDNMLRARLYQLADYDTYQEFEEAYILKEQKYSFLQNPQTSLCFSSEIPT 86
QY 62 PSNRVKTQOKSNLELRISILLIQSWLEPQVLRSVFANSIYVGASDSNVYRLKDLDEG 121
DB 87 PSNRVKTQOKSNLELRISILLIQSWLEPQVLRSVFANSIYVGASDSNVYRLKDLDEG 146
QY 122 IOTLMGRLEDSR 135
DB 147 IOTLMGRLEDSR 160

RESULT 3
Q14643 PRELIMINARY: PRT: 202 AA.
AC Q14643;
DT 01-JAN-1998 (TREMblrel. 05, Created)
DT 01-JAN-1998 (TREMblrel. 05, Last sequence update)
DT 01-DEC-2001 (TREMblrel. 19, Last annotation update)
DE PLACENTAL GROWTH HORMONE 20KDA ISOFORM PRECURSOR.
CN HGH-V.
OS Homo sapiens (human).

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OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX NCBI_TaxId=9606;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=FULL-TERM PLACENTA;
RX MEDLINE=98373737; PubMed=9709963;
RA Boguszewski C.L., Svensson P.A., Jansson T., Clark R.,
RA Carlsson L.M.S., Carlsson B.;
RT "Cloning of two novel growth hormone transcripts expressed in human
RT placenta.";
RL J. Clin. Endocrinol. Metab. 83:2878-2885(1998).
DR EMBL: AF006060; AAB71828.1; -.
DR HSSP: P01241; 1A22.
DR InterPro: IPR001400; SOMATOTROPIN.
DR Pfam: PF00103; hormone; 2.
DR PRINTS: PR00836; SOMATOTROPIN.
DR PROSITE: PS00266; SOMATOTROPIN_1; 1.
DR PROSITE: PS00338; SOMATOTROPIN_2; 1.
KW Signal.
FT SIGNAL 1
SQ SEQUENCE 202 AA; 23128 MW; 38B64D011A9197C6 CRC64;

Query Match 85.8%; Score 591.5; DB 4; Length 202;
Best Local Similarity 88.8%; Pred. No. 9.6e-53;
Matches 119; Conservative 0; Mismatches 0; Indels 15; Gaps 1;

QY 2 PPTPLSRFLPDNMLRARLYQLADYDTYQEFEEAYILKEQKYSFLQNPQTSLCFSSEIPT 61
DB 27 PPTPLSRFLPDNMLRARLYQLADYDTYQEFEEAYILKEQKYSFLQNPQTSLCFSSEIPT 71
QY 62 PSNRVKTQOKSNLELRISILLIQSWLEPQVLRSVFANSIYVGASDSNVYRLKDLDEG 121
DB 72 PSNRVKTQOKSNLELRISILLIQSWLEPQVLRSVFANSIYVGASDSNVYRLKDLDEG 131
QY 122 IOTLMGRLEDSR 135
DB 132 IOTLMGRLEDSR 145

RESULT 4
Q07369 PRELIMINARY: PRT: 217 AA.
AC Q07369;
DT 01-NOV-1996 (TREMblrel. 01, Created)
DT 01-NOV-1996 (TREMblrel. 01, Last sequence update)
DT 01-DEC-2001 (TREMblrel. 19, Last annotation update)
DE SOMATOTROPIN 3 PRECURSOR (GROWTH HORMONE 3).
OS Macaca mulatta (Rhesus macaque).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Cercopithecoidea;
OC Cercopithecoidea; Macaca.
OX NCBI_TaxId=9544;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=PLACENTA;
RX MEDLINE=94008724; PubMed=8404617;
RA Golos T.G., Durning M., Fisher J.M., Fowler P.D.;
RT "Cloning of four growth hormone/chorionic somatomotropin-related
RT complementary deoxyribonucleic acids differentially expressed during
RT pregnancy in the Rhesus monkey placenta.";
RL Endocrinology 133:1744-1752(1993).
CC CC
CC -1- FUNCTION: GROWTH HORMONE PLAYS AN IMPORTANT ROLE IN GROWTH
CC CONTROL.
CC -1- SUBCELLULAR LOCATION: SECRETED.
CC -1- SIMILARITY: BELONGS TO THE SOMATOTROPIN/PROLACTIN FAMILY.
DR EMBL: L16554; AAI18841.1; -.
DR HSSP: P01241; 1AXI.
DR InterPro: IPR001400; SOMATOTROPIN.
DR Pfam: PF00103; hormone; 1.
DR PRINTS: PR00836; SOMATOTROPIN.
DR PROSITE: PS00266; SOMATOTROPIN_1; 1.

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RESULT	7	
Q14407		
ID	Q14407	PRELIMINARY;
AC	Q14407;	PRT; 217 AA
PT	01-NOV-1996 (Tremblere, 01, Created)	

DT 01-NOV-1996 (TREMBLrel. 01, last sequence update)  
 DT 01-DEC-2001 (TREMBLrel. 19, last annotation update)  
 DT CHORIONIC SOMATOMAMOTROPIN CS-2.  
 OS Homo sapiens (Human).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.  
 OX NCBI\_TaxID=9606;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=89307277; PubMed=2744760;  
 RA Chen E.Y., Liao Y.C., Smith D.H., Barrera-Saldana H.A., Gelinas R.E.,  
 RA Seeburg P.H.;  
 RT "The human growth hormone locus: nucleotide sequence, biology, and  
 RT evolution."  
 RL Genomics 4:479-497(1989).  
 RN [2]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=91102558; PubMed=1980158;  
 RA Vnencak-Jones C.L., Phillips J.A. III.;  
 RT "Hot spots for growth hormone gene deletions in homologous regions  
 RT outside of Alu repeats."  
 RL Science 250:1745-1748(1990).  
 DR EMBL: J03071; AA52553.1; -;  
 DR HSSP: P01241; 1A22.  
 DR InterPro: IPR001400; SOMATOTROPIN.  
 DR Pfam: PF00103; hormone; 1.  
 DR PRINTS: PR00836; SOMATOTROPIN.  
 DR PROSITE: PS00266; SOMATOTROPIN\_1; 1.  
 DR PROSITE: PS00338; SOMATOTROPIN\_2; 1.  
 SQ SEQUENCE 217 AA; 24994 MW; 39FAACDDB6B2E951 CRC64;

Query Match 73.3%; Score 505; DB 4; Length 217;  
 Best Local Similarity 76.5%; Pred. No. 7.4e-44;  
 Matches 101; Conservative 13; Mismatches 18; Indels 0; Gaps 0;

OY 4 TITPLRFLPDNMLRRARLYOLAYDYDFOEFEEAYILKEOKYSFLONPOTSLCFSESIPPS 63  
 DB 29 TITPLRFLPDNMLRRARLYOLAYDYDFOEFEEAYILKEOKYSFLONPOTSLCFSESIPPS 88  
 OY 64 NREKVTQOKSNLELRISLLIQSWLEPVQLRSVANSIYVGASDSNVYRHLKDEEGIQ 123  
 DB 89 NMEETQOKSNLELRISLLIQSWLEPVQLRSVANSIYVGASDSNVYRHLKDEEGIQ 148  
 OY 124 TLMGRLEDSGSPR 135  
 DB 149 TLMGRLEDSGSPR 160

RESULT 8  
 OQUNL5 PRELIMINARY; PRT; 171 AA.  
 AC OQUNL5;  
 DT 01-MAY-2000 (TREMBLrel. 13, Created)  
 DT 01-MAY-2000 (TREMBLrel. 13, last sequence update)  
 DT 01-DEC-2001 (TREMBLrel. 19, last annotation update)  
 DE GROWTH HORMONE SPLICED VARIANT.  
 OS Homo sapiens (Human).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.  
 OX NCBI\_TaxID=9606;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=PIUITARY;  
 RA Song H., Peng Y., Dai M., Huang Q., Mao Y., Zhang Q., Mao M., Fu G.,  
 RA Luo M., Chen J., Hu R.;  
 RT "Human growth hormone variant splicing gene."  
 RL Submitted (DEC-1998) to the EMBL/GenBank/DBJ databases.  
 DR EMBL: AF110644; AAD48584.1; -;  
 DR HSSP: P01241; 1AX1.  
 DR InterPro: IPR001400; SOMATOTROPIN.  
 DR Pfam: PF00103; hormone; 2.  
 DR PRINTS: PR00836; SOMATOTROPIN.

DR PROSITE: PS00266; SOMATOTROPIN\_1; 1.  
 DR PROSITE: PS00338; SOMATOTROPIN\_2; 1.  
 SQ SEQUENCE 171 AA; 19801 MW; 9FA9013991FA9F28 CRC64;

Query Match 64.3%; Score 443; DB 4; Length 171;  
 Best Local Similarity 66.7%; Pred. No. 1.2e-37;  
 Matches 92; Conservative 13; Mismatches 13; Indels 20; Gaps 3;

OY 2 FPTPLRFLPDNMLRRARLYOLAYDYDFOEFEEAYILKEOKYSFLONPOTSLCFSESIPPS 61  
 DB 27 FPTPLRFLPDNMLRRARLYOLAYDYDFOEFEEAYILKEOKYSFLONPOTSLCFSESIPPS 86  
 OY 62 PSNRKVTQOKSNLELRISLLIQSWLEPVQLRSVANSIYVGASDSN----- 110  
 DB 87 PSNRKVTQOKSNLELRISLLIQSWLEPVQLRSVANSIYVGASDSN-----TYSKFDTSNHDALLKNY 140  
 OY 111 --VYRHLKDEEGIQTLM 126  
 DB 141 GLLYCFRDMDK-VETFL 157

RESULT 9  
 ID P78451 PRELIMINARY; PRT; 167 AA.  
 AC P78451;  
 DT 01-MAY-1997 (TREMBLrel. 03, Created)  
 DT 01-MAY-1997 (TREMBLrel. 03, last sequence update)  
 DT 01-DEC-2001 (TREMBLrel. 19, last annotation update)  
 DE SOMATOMAMOTROPIN (CHORIONIC SOMATOMAMOTROPIN) (HCS) (FRAGMENT).  
 OS Homo sapiens (Human).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.  
 OX NCBI\_TaxID=9606;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=78071761; PubMed=593368;  
 RA Shine J., Seeburg P.H., Martial J.A., Baxter J.D., Goodman H.M.;  
 RT "Construction and analysis of recombinant DNA for human chorionic  
 RT somatomammotropin."  
 RL Nature 270:494-499(1977).  
 RN [2]  
 RP SEQUENCE OF 110-167 FROM N.A.  
 RX MEDLINE=78160787; PubMed=611657;  
 RA Seeburg P.H., Shine J., Martial J.A., Ullrich A., Goodman H.M.,  
 RA Baxter J.D.;  
 RT "Nucleotide sequence of a human gene coding for a polypeptide  
 RT hormone."  
 RL Trans. Assoc. Am. Physicians 90:109-116(1977).  
 DR EMBL: V00593; CAA23840.1; -;  
 DR EMBL: M25118; AA35721.1; -;  
 DR HSSP: P01241; 1A22.  
 DR InterPro: IPR001400; SOMATOTROPIN.  
 DR Pfam: PF00103; hormone; 1.  
 DR PRINTS: PR00836; SOMATOTROPIN.  
 DR PROSITE: PS00266; SOMATOTROPIN\_1; 1.  
 DR PROSITE: PS00338; SOMATOTROPIN\_2; 1.  
 KW Chorton.  
 FT NON\_TER 1  
 SQ SEQUENCE 167 AA; 19586 MW; 6EC7829D3938E976 CRC64;

Query Match 61.5%; Score 424; DB 4; Length 167;  
 Best Local Similarity 78.0%; Pred. No. 1e-35;  
 Matches 85; Conservative 9; Mismatches 15; Indels 0; Gaps 0;

OY 27 DTYOEFEEAYILKEOKYSFLONPOTSLCFSESIPPSNRKVTQOKSNLELRISLLIQS 86  
 DB 2 DTYOEFEEAYILKEOKYSFLONPOTSLCFSESIPPSNRKVTQOKSNLELRISLLIQS 61  
 OY 87 WLEPVQLRSVANSIYVGASDSNVYRHLKDEEGIQTLMGRLEDSGSPR 135  
 DB 62 WLEPVQLRSVANSIYVGASDSNVYRHLKDEEGIQTLMGRLEDSGSPR 110



ID	Q9H21	PRELIMINARY;	PRT;	179 AA.
AC	Q9H21			
DT	01-MAR-2001 (TREMBLrel. 16, Created)			
DT	01-MAR-2001 (TREMBLrel. 16, Last sequence update)			
DT	01-DEC-2001 (TREMBLrel. 19, Last annotation update)			
DE	GROWTH HORMONE VARIANT.			
GN	GHV.			
OS	Homo sapiens (Human).			
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;			
OC	Mammalia; Eutheria; Primates; Catarrhini; Homidae; Homo.			
OX	NCBI_taxonomy:9606;			
RN	[1]			
RP	SEQUENCE FROM N.A.			
RC	TISSUE=PIRUITARY.			
RA	Gu J., Huang Q., Li N., Xu S., Han Z., Fu G., Chen Z.;			
RT	"A novel gene expressed in human pituitary.";			
RL	Submitted (SEP-1999) to the EMBL/GenBank/DBJ databases.			
DR	EMBL; AF185611; AACG9699.1; -.			
DR	HSSP; P01241; IAXI.			
DR	InterPro; IPR001400; SOMATOTROPIN.			
DR	Pfam; PF00103; hormone; 2.			
DR	ProSITE; PS00338; SOMATOTROPIN_2; 1.			
SO	SEQUENCE 179 AA; 20561 MW; 0E873A91BE09B7E CRC64;			
QY	2 FFTPLSLFQNMARARLYOLADTYQEPPEATIIIEKQKSFQNGQTSCESESIFT 61			
Db	27 FFTPLSLFQNMARARLYOLADTYQEPPEATIIIEKQKSFQNGQTSCESESIFT 86			
QY	62 PSNRVTKQOKSNLELRLSLILIOSMLEPVLIRSVFANSILVYGASDSNVYRHLKDLEG 121			
Db	87 PSNRVTKQOKSNLELRLSLILIOSMLEPVLIRSVFANSILVYGASDSNVYRHLKDLEG 108			
QY	122 IQTLMKRLDGSPP 135			
Db	109 IQTLMKRLDGSPP 122			
RESULT 11				
Q9R2C3	PRELIMINARY;	PRT;	216 AA.	
AC	Q9R2C3			
DT	01-MAY-2000 (TREMBLrel. 13, Created)			
DT	01-MAY-2000 (TREMBLrel. 13, Last sequence update)			
DT	01-JUN-2001 (TREMBLrel. 17, Last annotation update)			
DE	GROWTH HORMONE.			
OS	Mus musculus (Mouse).			
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;			
OC	Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.			
OX	NCBI_taxonomy:10090;			
RN	[1]			
RP	SEQUENCE FROM N.A.			
RT	Nguyen T.N.K., Liehaber S.A.;			
RL	"Mouse Growth Hormone Locus: Nucleotide Sequence and Phylogenetic Analyses.";			
DR	Submitted (AUG-1995) to the EMBL/GenBank/DBJ databases.			
DR	EMBL; U34362; AAC99988.1; -.			
DR	HSSP; P01246; IBSU.			
DR	InterPro; IPR001400; SOMATOTROPIN.			
DR	Pfam; PF00103; hormone; 1.			
DR	PRINTS; PR00836; SOMATOTROPIN.			
DR	ProSITE; PS00266; SOMATOTROPIN_1; 1.			
DR	ProSITE; PS00338; SOMATOTROPIN_2; 1.			
SO	SEQUENCE 216 AA; 24682 MW; FC2A06DA02536B18 CRC64;			

	Query Match	60.2%	Score 415;	DB 11;	Length 216;	
	Best Local Similarity	61.9%;	Pred. No. 1.2e-34;			
	Matches	83;	Conservative	20;	Mismatches	29;
					Indels	2;
					Gaps	2;
Oy	2	FPTPLSLRLDNMLRRARUYLAVDYVOEPEAYLLKECKYSFLQNPQISLCFSIESIPT	61			
Dd	27	FPAPRPLSSLPFNNVILAKGHHQLADPTLYELERATITPEGQKYS-IQNQAQAFCSSETIRA	85			
Oy	62	PSNRVKTQOKSNLELLIRISLLLIQSWELEPVOLLRSVFANSLVYGASDNNYRHKLDEEG	121			
		: : : : :   : : : :   : : : :   : : : :   : : : :   : : : :   : : : :   : : : :				
Dd	86	PTGEEEAQQRTDMELLRFSLIIQSWSLGVCLSRIFPNSIMFCTSD-RYEKKLKLDIEG	144			
Oy	122	IQTLMWRLEDGSPR	135			
Dd	145	IQTALMQLEDGSPR	158			

RESULT	12			
Q9JMK4				
ID	Q9JMK4	PRELIMINARY;	PRT;	216 AA.
AC	Q9JMK4;			
DT	01-OCT-2000 (TREMBLrel. 15, Created)			
DT	01-OCT-2000 (TREMBLrel. 15, last sequence update)			
DT	01-DEC-2001 (TREMBLrel. 19, last annotation update)			
DE	GROWTH HORMONE PRECURSOR.			
OS	Cavia porcellus (Guinea pig).			
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;			
OC	Mammalia; Eutheria; Rodentia; Hystriognathi; Cavidae; Cavia.			
OX	NCBI_TaxId=10141;			
RN	[1]			
RP	SEQUENCE FROM N.A.			
RA	Odoorico D.M., Fuller P.J., Herington A.C.;			
RT	"Cloning and sequence of guinea pig growth hormone (GH)."			
RL	Submitted (FEb-2000) to the EMBL/Genbank/DBJ databases.			
DR	EMBL; AF233853; AAF36409.1; -.			
DR	HSSP; P01246; IBST.			
DR	InterPro; IPR001400; SOMATOTROPIN.			
DR	Pfam; PF00103; hormone.1.			
DR	PRINTS; PR00836; SOMATOTROPIN.			
DR	PROSITE; PS00266; SOMATOTROPIN_1.			
DR	PROSITE; PS00338; SOMATOTROPIN_2; UNKNOWN_1.			
KW	Signal.			
FT	SIGNAL	1	26	POTENTIAL.
FT	CHAIN	27	216	GROWTH HORMONE.
Q0	SEQUENCE	216 AA; 24822 MW;		4599656119B08D03 CRC64;

Query Match	60.1%	Score 414	DB 11	Length 216
Best Local Similarity	62.7%	Pred. No. 1.5e-34		
Matches 84	Conservative 19	Mismatches 29	Indels 2	Gaps 2
QY	2	FPPTPLSLRLDNMLARRLAYDLYOEFEENAYILKEKQSYFLONPQSLCFSESIP	61	
		:       :    :            :    :    :    :    :		
Db	27	FPFAPLSSLFGNNAVLAQHHLQDLADTYKEPERITYIPGCQYRS-ITHTYTAFCFSETIFA	85	
QY	62	PSNRVKTQOKSNDELLRISILLIQSMLEPVOYLLRSVFANSLVYGSDSNYYRLKDLLEG	121	
		:    :    :    :    :    :    :    :    :    :    :		
Db	86	PTPKREAAQOQSDVELLHMFSLLLIQSMGLGYQLSNVFNLSVFCSTD-RYEXKLKDLLEG	144	
QY	122	IQLTLMRLLEDGSPR	135	
		:    :		
Db	145	IQALMRELLEDGTPR	158	
RESULT 13				
ID 070615	PRELIMINARY	PRT	216	AA.
AC 070615				
DT 01-AUG-1998 (Tremblrel. 07, Created)				
DT 01-AUG-1998 (Tremblrel. 07, Last sequence update)				
DT 01-DEC-2001 (Tremblrel. 19, Last annotation update)				
DE GROWTH HORMONE PRECURSOR.				

Query Match	59.8%	Score 412	DB 11	Length 216
Best Local Similarity	63.4%	Pred. No. 2.4e-34		
Matches 85	Conservative 18	Mismatches 29	Indels 2	Gaps 2

RESULT 14  
Q9JKG0  
ID Q9JKG0 PRELIMINARY; PRT; 190 AA.

DT 01-OCT-2000 (TREMBLrel. 15, Created)  
DT 01-OCT-2000 (TREMBLrel. 15, last sequence update)  
DT 01-DEC-2001 (TREMBLrel. 19, last annotation update)  
DE GROWTH HORMONE (FRAGMENT).  
OS *Gavia porcellus* (Guinea pig).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Rodentia; Hystriocognathi; Caviidae; Cavia.  
OX NCBI\_TaxID=10141;  
[1]  
RN  
RP SEQUENCE FROM N.A.  
RX MEDLINE=20231762; PubMed=10767558;  
RA Adkins R.M., Vandenberg J., Li W.H.;  
RT "Molecular evolution of growth hormone and receptor in the guinea pig  
RT RT "a mammalian unresponsive to growth hormone.";  
RL Gene 246:357-363(2000).  
RL EMBL; AF238493; AAF67172.1; -.  
DR HSSP; P01246; 1BST.  
DR InterPro; IPR001400; SOMATOTROPIN.  
DR Pfam; PF00103; hormone. 1.  
DR PRINTS; PR00836; SOMATOTROPIN.  
DR PROSITE; PS00266; SOMATOTROPIN\_1; 1.  
DR PROSITE; PS00338; SOMATOTROPIN\_2; UNKNOWN\_1.  
FT NON\_TER  
SQ SEQUENCE 190 AA; 21962 MW; 6A0394FC5E707BE8 CRC64;

Query Match 58.6%; Score 404; DB 11; Length 190;

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QY      2  FPTPLSPFNAMRARKVLQVLADPYDQEEFAMYLILKEOKSYLQDPOSLFCESEIPT 61
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Db      1  FPMAXSXFCFNNAVIRAOHLQVLADPYLKEERYILIEBQKXS - INHTQRAFCESEITPA 59
        | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

QY      62  PSNRKTKQOKNSLELRLRILLSLQSWLEPVQLKSVANSLSYQASDSNNYRHKLDLDEG 121
        | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
Db      60  PDKDEAQQDSVLEHLHSLILLSQSWLGPVQLSVFSLVFTSLD - RYERKLDLDEG 118
        | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

QY      122  IQTLLMRLEDGSPR 135
        | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
Db      119  IQALLMRLEDGTPR 132
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RESULT 15
Q9TU21
ID Q9TU21 PRELIMINARY; PRT; 192 AA.
AC Q9TU21;
DT 01-MAY-2000 (TREMBLrel. 13, Created)
DT 01-MAY-2000 (TREMBLrel. 13, Last sequence update)
DT 01-JUN-2001 (TREMBLrel. 17, Last annotation update)
DE GROWTH HORMONE.
OS Capra hircus (Goat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Bovidae; Caprinae; Capra.
OX NCBI_TaxID=9925;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=INDIAN BEETLE;
RA Mukhopadhyay U.K., Sahni G.;
RT "Indian goat growth hormone cDNA.";
RL Submitted (AUG-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF177287; AAF03130.1; -.
DR HSSP; P01246; 1BST.
DR InterPro; IPR001400; SOMATOTROPIN.
DR Pfam; PF00103; hormone.1.
DR PRINTS; PR00836; SOMATOTROPIN.
DR PROSITE; PS00266; SOMATOTROPIN_1.1.
DR PROSITE; PS00338; SOMATOTROPIN_2.1.
SQ SEQUENCE 192 AA; 21977 MW; A5A6977B607F31BA CRC64;

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Query Match	58.6%;	Score 404;	DB 6;	Length 192;
Best Local Similarity	62.7%;	Pred. No. 1.4e-33;		
Matches 84;	Conservative 18;	Mismatches 30;	Indels 2;	Gaps 2;

Qy	2	FPPDLSLFPNMMARRRLVQLAVDYDVEEAAVILLEKQKSPSLDMPDLSFEESIPT	61
Db	3	FPAHSLSLFPNAAVYRAOHLQQLADDFKEERKYLIEGQRYS - IQMTQVAFCSSEIIPA	61
Qy	62	PSNRKVTQOKNSLELLRLRISLLISQWLEPVLLEKRSVANSIYVQASDSNNYRLHKDLEEG	121
Db	62	PTGKNEAOKSDLELRLRISLLISQWLGPIQFLSRVFTNSLVEGTSQ - RVEYKIKDLEEG	120
Qy	122	IQTLMRMRLDGSPPR	135
Db	121	ILALMRELEDDGTPR	134

Search completed: September 25, 2002, 09:59:31  
Job time: 150 sec



